09/08/99

See Sheet 1-A For Index of Sheets
See Sheet 1-C for Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

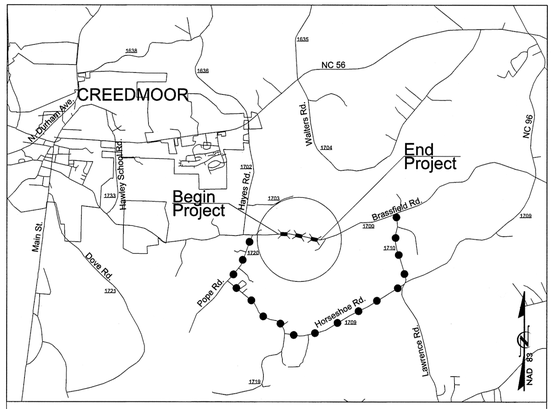
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17.BP.5.R.27, 17.BP.5.R.25, 17.BP.5.R.26	1	69

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17.BP.5.R.27		PE, R/W, UTIL
17.BP.5.R.25		PE, R/W, UTIL
17.BP.5.R.26		PE, R/W, UTIL

GRANVILLE COUNTY

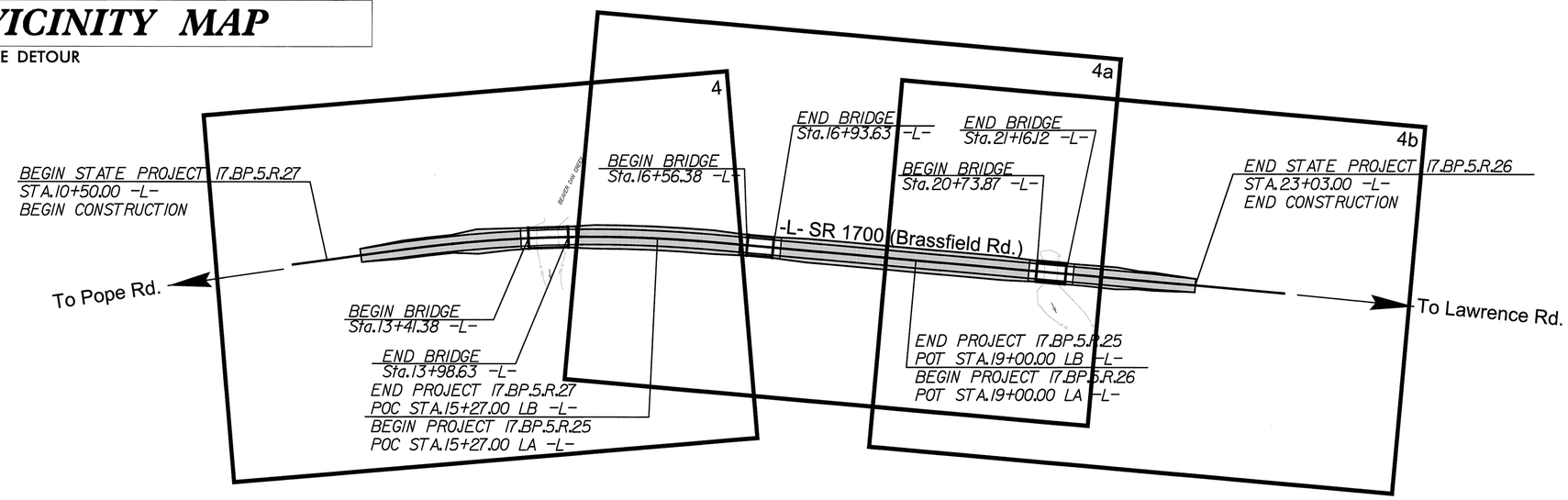
LOCATION: Bridges No. 380023, 380022 and 380021 over Beaver Dam Creek on SR 1700 (Brassfield Road)

TYPE OF WORK: Paving, Grading, Drainage, Structures, Striping



VICINITY MAP

OFFSITE DETOUR



NOTE:A DESIGN EXCEPTION IS REQUIRED FOR SUPERELEVATION

CLEARING ON THIS PROJECT SHALL BE ACCORDING TO THE LIMITS ESTABLISHED BY METHOD III

CONTRACT: 17.BP.5.R.27, 17.BP.5.R.25, 17.BP.5.R.26

GRAPHIC SCALES

40 20 0 40 80
PLANS

40 20 0 40 80
PROFILE (HORIZONTAL)

5 2.5 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2011 = 2,500
ADT 2025 = 4,800
DHV = 10 %
D = 50 %
T = 6 % *
V = 60 MPH
* TTST = DUAL
FUNC CLASS = MINOR COLLECTOR
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY	=	0.212 MILES
LENGTH OF STRUCTURE 380023	=	0.010 MILES
LENGTH OF STRUCTURE 380022	=	0.007 MILES
LENGTH OF STRUCTURE 380021	=	0.008 MILES
TOTAL LENGTH OF PROJECT	=	0.237 MILES

Plans prepared for the North Carolina Department of Transportation In the Office of:

MARTIN ALEXIOU BRYSON
4000 WestChase Boulevard, Suite 530
Raleigh, NC 27607
NC License No. C-3496
Transportation Planning & Design
Traffic Engineering

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
Aug. 13, 2012

LETTING DATE:
March 2013

Keith Lewis, PE
PROJECT ENGINEER

Laura Fisher, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA C. DALTON
02/21/13
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 030877 ENGINEER LAURA C. FISHER
2/21/13
SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2/21/2013
17BP5R26_rdy_tsh.dgn
lfisher

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030877 ENGINEER LAURA C. FISHER 2/8/13

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS

EFFECTIVE: 01-17-12
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTERLINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

END BENTS:

THE SURVEYOR SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTIONS PRIOR TO SETTING THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACTOR.

UTILITIES:

ALL UTILITIES HAVE BEEN REMOVED FROM PROJECT AREA, OR ARE NOT ANTICIPATED TO BE IN CONFLICT WITH THE PROJECT.

LIST OF ROADWAY STANDARD DRAWINGS

EFFECTIVE: 01-17-12
REVISED:

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch N.C. Department of Transportation – Raleigh, N.C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans"

STD.NO.	TITLE
DIVISION 2 – EARTHWORK	
200.03	Method of Clearing – Method III
225.02	Guide for Grading Subgrade –Secondary and Local
225.04	Method of Obtaining Superelevation – Two Lane Pavement
DIVISION 3 – PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 – MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills – Sub Regional Tier
DIVISION 5 – SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction – High Side of Superelevated Curve – Method I
DIVISION 8 – INCIDENTALS	
806.02	Concrete Right-of-Way Marker
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frame
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet – for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	MODIFIED CONCRETE FLUME STANDARD DETAIL
1-C	CONVENTIONAL SYMBOLS
2	TYPICAL SECTIONS
3	SUMMARY OF DRAINAGE QUANTITIES, GUARDRAIL SUMMARY, AND EARTHWORK SUMMARY
4 thru 4b	PLAN SHEETS
5	PROFILE SHEET
TCP-1 thru TCP-2	TRAFFIC CONTROL PLANS
X-1 thru X-9	CROSS SECTIONS
EC-1 thru EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLAN
S-1 thru S-12	STRUCTURE PLANS – BRIDGE NO. 380023
S-1 thru S-12	STRUCTURE PLANS – BRIDGE NO. 380022
S-1 thru S-12	STRUCTURE PLANS – BRIDGE NO. 380021

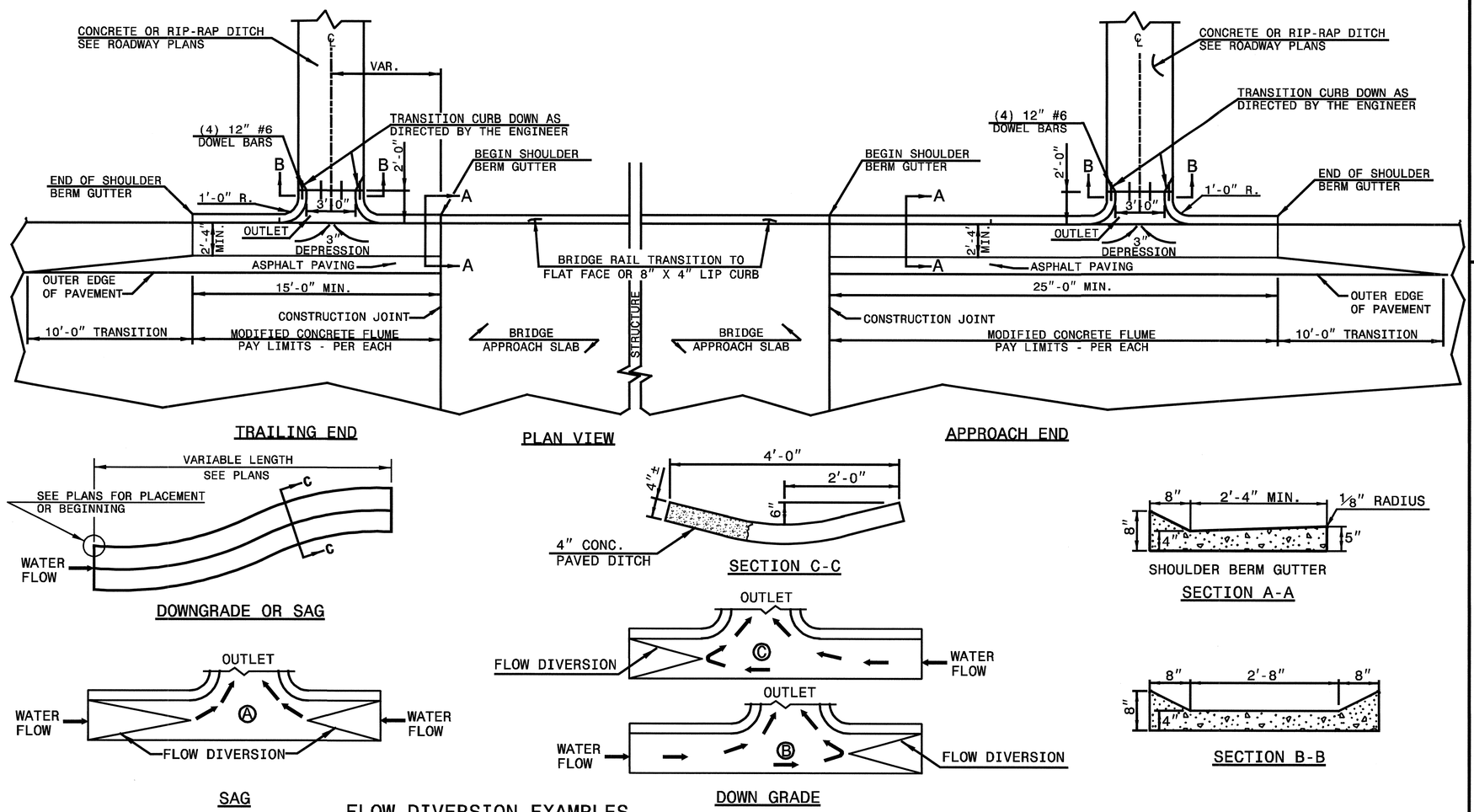
8/17/99

2/7/2013
17BP5R26_rdy_psh1a.dgn
fisher

PROJECT REFERENCE NO.	SHEET NO.
17.BP.5.R.27, 17.BP.5.R.25, 17.BP.5.R.26	1-B

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH



FLOW DIVERSION EXAMPLES

NOTES:

- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18" PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

SHEET 1 OF 1
MODFLMDTCH

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1
MODFLMDTCH

04/16/11

PROJECT REFERENCE NO.	SHEET NO.
17.BP.5.R.27, 17.BP.5.R.25, 17.BP.5.R.26	1-C

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line

- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

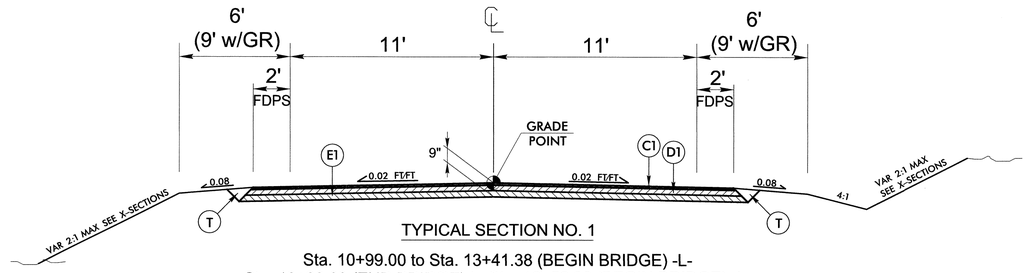
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

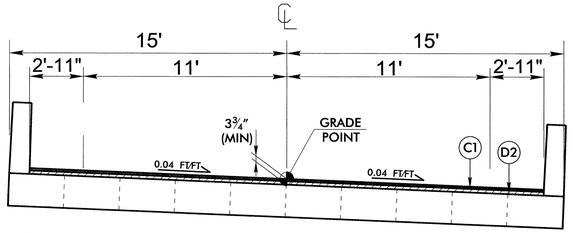
PROJECT REFERENCE NO.	SHEET NO.
17.BP.5.R.27, 17.BP.5.R.25, 17.BP.5.R.26	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

NORTH CAROLINA PROFESSIONAL SEAL 030877 ENGINEER LAURA C. FISHER 2/8/13



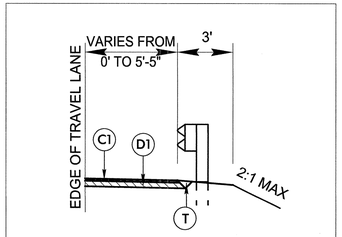
TYPICAL SECTION NO. 1

Sta. 10+99.00 to Sta. 13+41.38 (BEGIN BRIDGE) -L-
Sta. 13+98.63 (END BRIDGE) to Sta. 16+56.38 (BEGIN BRIDGE) -L-
Sta. 16+93.63 (END BRIDGE) to Sta. 20+73.87 (BEGIN BRIDGE) -L-
Sta. 21+16.12 (END BRIDGE) to Sta. 23+03.00 -L-

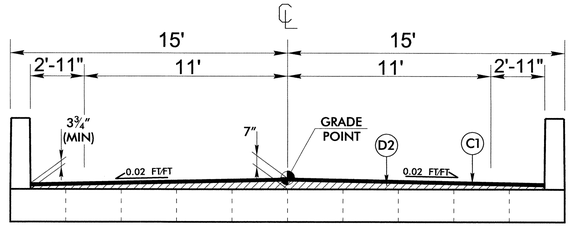


TYPICAL SECTION NO. 2

Sta. 13+41.38 (BEGIN BRIDGE) to Sta. 13+98.63 (END BRIDGE) -L-
SEE SHEET S-4 FOR 17.BP.5.R.27 DETAIL

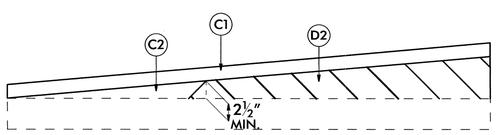


FULL DEPTH PAVED SHOULDER DETAIL



TYPICAL SECTION NO. 3

Sta. 16+56.38 (BEGIN BRIDGE) to Sta. 16+93.63 (END BRIDGE) -L-
SEE SHEET S-4 FOR 17.BP.5.R.25 DETAIL
Sta. 20+73.87 (BEGIN BRIDGE) to Sta. 21+16.12 (END BRIDGE) -L-
SEE SHEET S-4 FOR 17.BP.5.R.26 DETAIL



Wedging Detail For Asphalt on Bridge

PAVEMENT SCHEDULE

CODE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1½" DEPTH.
D1	PROP. APPROX. 3.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2½" AND NOT TO EXCEED 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
T	EARTH MATERIAL

Note: Pavement edge slopes are 1:1 unless shown otherwise

5/14/99
2/7/2013
17BP5R26_rdy_typ.dgn
lfisher

12/06/07

COMPUTED BY:	DATE:
CHECKED BY:	DATE:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
17.BP.5.R.27, 17.BP.5.R.25, 17.BP.5.R.26	3

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L- 10+99.00	-L- 13+41.38	170	62	0	108
-L- 13+98.63	-L- 16+56.38	42	490	448	0
-L- 16+93.63	-L- 20+73.87	197	294	97	0
-L- 21+16.12	-L- 23+03.00	85	29	0	56
SUBTOTAL:		494	875	545	164
PROJECT TOTALS:		494	875	545	164
5% TO REPLACE TOPSOIL IN BORROW PIT				27	
GRAND TOTALS:		494		572	
SAY:		500		575	

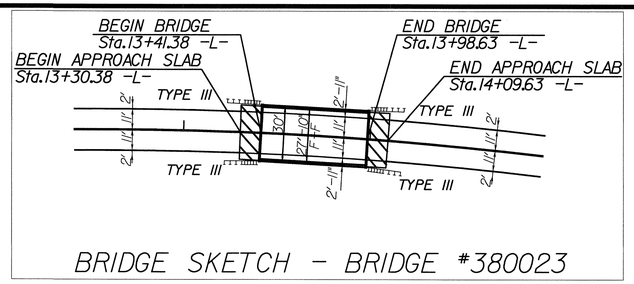
SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L- RT	13+19.00	13+30.38	11.4
-L- RT	17+04.63	17+17.00	12.4
-L- LT	17+04.63	17+17.00	12.4
-L- RT	20+15.00	20+62.87	47.9
-L- LT	20+15.00	20+62.87	47.9
TOTAL:			132
SAY:			135

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

| STATION | LOCATION (LT,RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE PIPE CLASS IV R.C. PIPE 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | C.S. PIPE (UNLESS NOTED OTHRWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | CLASS III R.C. PIPE (UNLESS OTHERWISE NOTED) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P. | C.S.P. | QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. "A" + (1.3 X COL."B") LIN. FT. A | B | PER EACH (0' THRU 5.0') | 5.0' THRU 10.0' | 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME & GRATE STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.22 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24 | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | T.B. G.D.I. STD. 840.35 | TBG.D.I. (NS) FRAME W/TWO FLAT GRATES STD. 840.29 | MOD. CONC. FLUME | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN.FT. | REMARKS |
|---|---|---|---|---|---

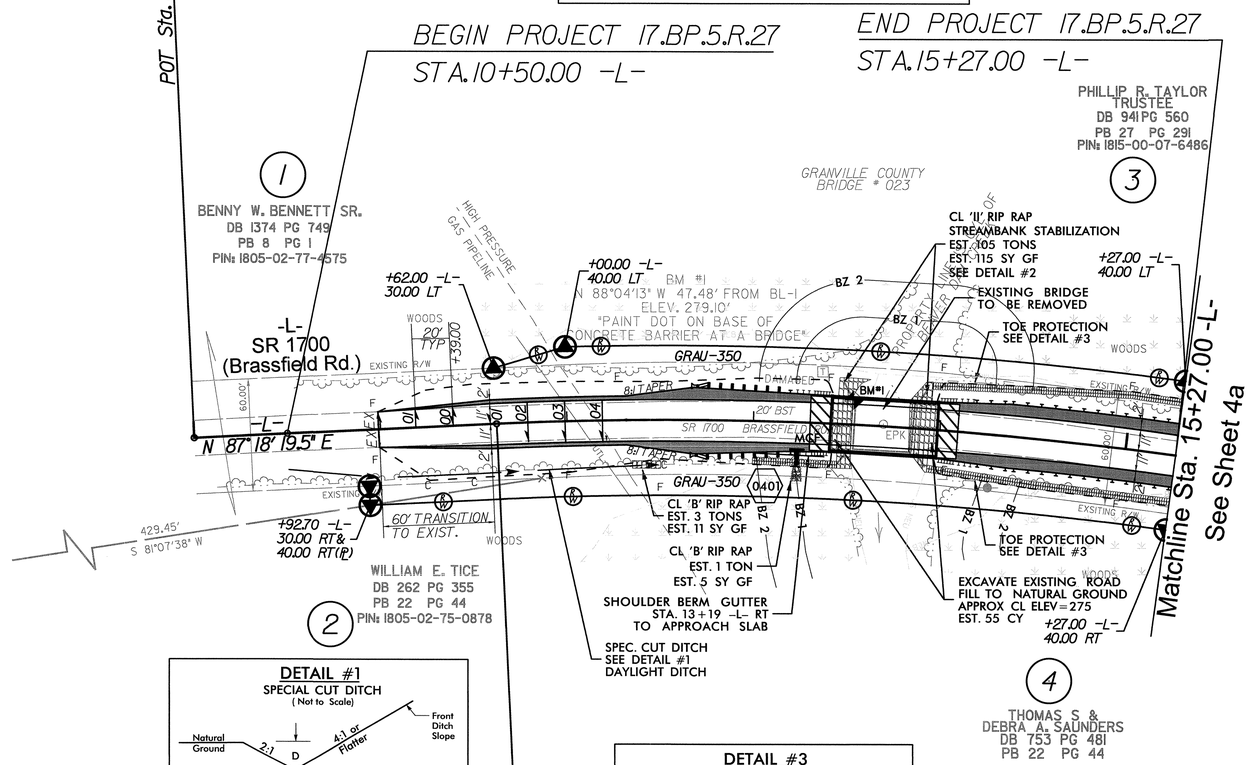
PROJECT REFERENCE NO.	SHEET NO.
17.BP.5.R.27	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



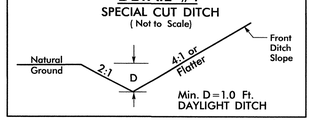
BRIDGE SKETCH - BRIDGE #380023

-L-
PI Sta 13+87.44
Δ = 12° 50' 43.8" (RT)
D = 2° 51' 53.2"
L = 448.39'
T = 225.14'
R = 2,000.00'

REMOVE EXISTING ABUTMENTS AND FOOTINGS. PLACE BANK STABILIZATION W/CLASS II RIP RAP (SEE DETAIL 2). USE IMPERVIOUS DIKE STANDARD BMP ALONG STREAM BANKS TO DEWATER AND ISOLATE ADJACENT WORK AREA TO REMOVE EXISTING ABUTMENT AND PILES IN THE DRY. THE PLACEMENT OF THE IMPERVIOUS DIKE IS CONSIDERED INCIDENTAL TO THE ABUTMENT REMOVAL.

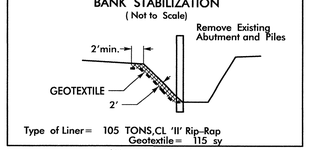


DETAIL #1
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 10+50 TO STA. 12+50 -L- RT

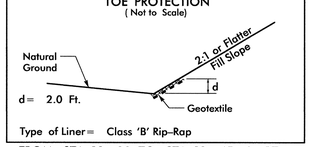
DETAIL #2
BANK STABILIZATION
(Not to Scale)



Type of Liner= 105 TONS,CL 'II' Rip-Rap
Geotextile= 115 sy

STA. 13+50 -L-
STA. 13+90 -L-

DETAIL #3
TOE PROTECTION
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

FROM STA. 13+00 TO STA. 13+45 -L- RT
FROM STA. 13+95 TO STA. 15+27 -L- LT & RT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY CH ENGINEERING FOR MONUMENT "BL-4"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 856978.188(ft) EASTING: 2109606.480(ft)
ELEVATION: 282.693' (BL-1)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99997465
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-4" TO -L- STATION IS

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BM-1: PAINT DOT ON BASE OF CONCRETE BARRIER, 13.14' LT. OF STA. 13+53.13 -L-, EL. 279.10

DESC.	NORTHING	EASTING	ELEVATION
BL-1	857129.47	2108658.70	278.01
BL-2	857059.83	2108952.95	277.31
BL-3	856994.90	2109315.64	277.10
BL-4	856978.19	2109606.48	282.69

PARCEL INDEX	
PARCEL NO.	PROPERTY OWNER NAME
1	BENNY W. BENNETT SR.
2	WILLIAM E. TICE
3	PHILLIP R. TAYLOR, TRUSTEE
4	THOMAS S. & DEBRA A. SAUNDERS

-L- COORDINATE LIST		
STATION	NORTHING	EASTING
10+00	857110.45	2108257.74
11+00	857105.47	2108756.92
12+00	857020.37	2109249.58
13+00	857119.81	2108557.52
14+00	857115.13	2108657.40
15+00	857105.47	2108756.92
16+00	857090.84	2108855.83
17+00	857073.24	2108954.27
18+00	857055.62	2109052.71
19+00	857038.00	2109151.14
20+00	857020.37	2109249.58
21+00	857002.75	2109348.01
22+00	856985.12	2109446.45
23+00	856967.50	2109544.88
24+00	856949.88	2109643.32

SEE SHEET 1-B FOR MODIFIED CONCRETE FLUME DETAIL
SEE SHEET 5 FOR -L- PROFILE

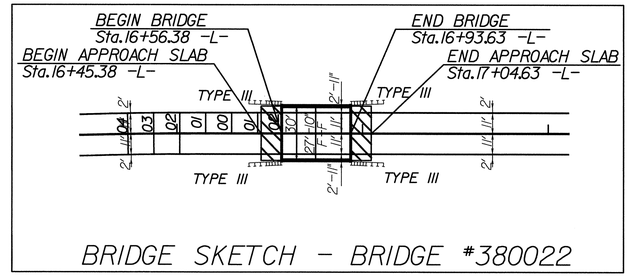
5/14/99
2/7/2013
17BP5R26_rdy_psh04.dgn
lfisher

PROJECT REFERENCE NO.	SHEET NO.
17.BP.5.R.25	4a
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030877 ENGINEER LAURA C. FISHER 2/8/13

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA C. DALTON 2/8/13

NAD 83/NSRS 2007



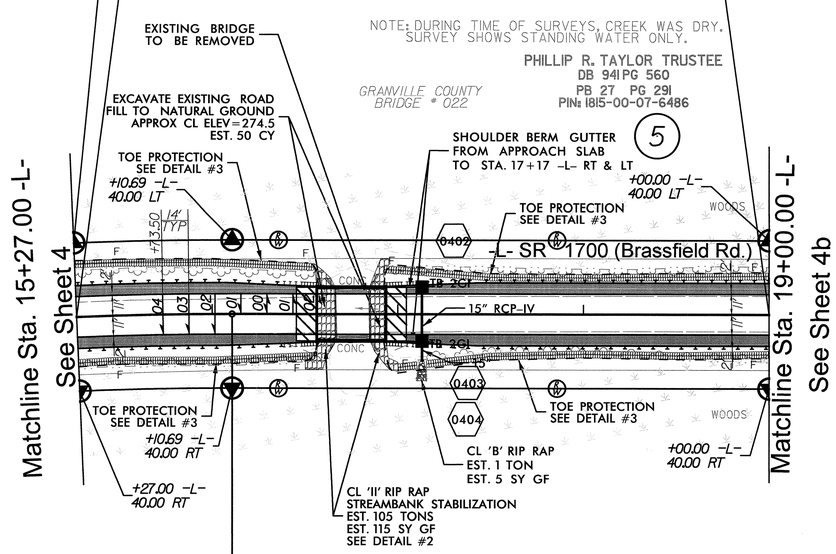
BRIDGE SKETCH - BRIDGE #380022

REMOVE EXISTING ABUTMENTS AND FOOTINGS.
PLACE BANK STABILIZATION W/CLASS II RIP RAP (SEE DETAIL 2).
USE IMPERVIOUS DIKE STANDARD BMP ALONG STREAM BANKS TO DEWATER AND ISOLATE ADJACENT WORK AREA TO REMOVE EXISTING ABUTMENT AND PILES IN THE DRY. THE PLACEMENT OF THE IMPERVIOUS DIKE IS CONSIDERED INCIDENTAL TO THE ABUTMENT REMOVAL.

END PROJECT 17.BP.5.R.25
STA.19+00.00 -L-

+27.00 -L-
40.00 LT

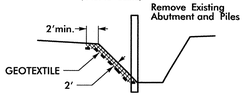
BEGIN PROJECT 17.BP.5.R.25
STA.15+27.00 -L-



6

THOMAS S & DEBRA A. SAUNDERS
DB 753 PG 481
PB 22 PG 44
PIN: 1805-02-96-2031

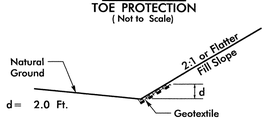
DETAIL #2
BANK STABILIZATION
(Not to Scale)



Type of Liner= 105 TONS,CL 'II' Rip-Rap
Geotextile= 115 sy

STA. 16+65 -L-
STA. 16+90 -L-

DETAIL #3
TOE PROTECTION
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

FROM STA. 15+27 TO STA. 16+55 -L- LT & RT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY CH ENGINEERING FOR MONUMENT "BL-4"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 856978.188(ft) EASTING: 2109606.480(ft)
ELEVATION: 282.693' (BL-1)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99997465
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-4" TO -L- STATION IS

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BM-1: PAINT DOT ON BASE OF CONCRETE BARRIER, 13.14' LT. OF STA. 13+53.13 -L-, EL. 279.10

DESC.	NORTHING	EASTING	ELEVATION
BL-1	857129.47	2108658.70	278.01
BL-2	857059.83	2108952.95	277.31
BL-3	856994.90	2109315.64	277.10
BL-4	856978.19	2109606.48	282.69

-L-

PI Sta 13+87.44
Δ = 12° 50' 43.8" (RT)
D = 2° 51' 53.2"
L = 448.39'
T = 225.14'
R = 2,000.00'

PARCEL INDEX	
PARCEL NO.	PROPERTY OWNER NAME
5	PHILLIP R. TAYLOR, TRUSTEE
6	THOMAS S. & DEBRA A. SAUNDERS

-L- COORDINATE LIST		
STATION	NORTHING	EASTING
10+00	857110.45	2108257.74
11+00	857105.47	2108756.92
12+00	857020.37	2109249.58
13+00	857119.81	2108557.52
14+00	857115.13	2108657.40
15+00	857105.47	2108756.92
16+00	857090.84	2108855.83
17+00	857073.24	2108954.27
18+00	857055.62	2109052.71
19+00	857038.00	2109151.14
20+00	857020.37	2109249.58
21+00	857002.75	2109348.01
22+00	856985.12	2109446.45
23+00	856967.50	2109544.88
24+00	856949.88	2109643.32

SEE SHEET 5 FOR -L- PROFILE

5/14/99
2/7/2013
17BP5R26_rdy_psh04a.dgn

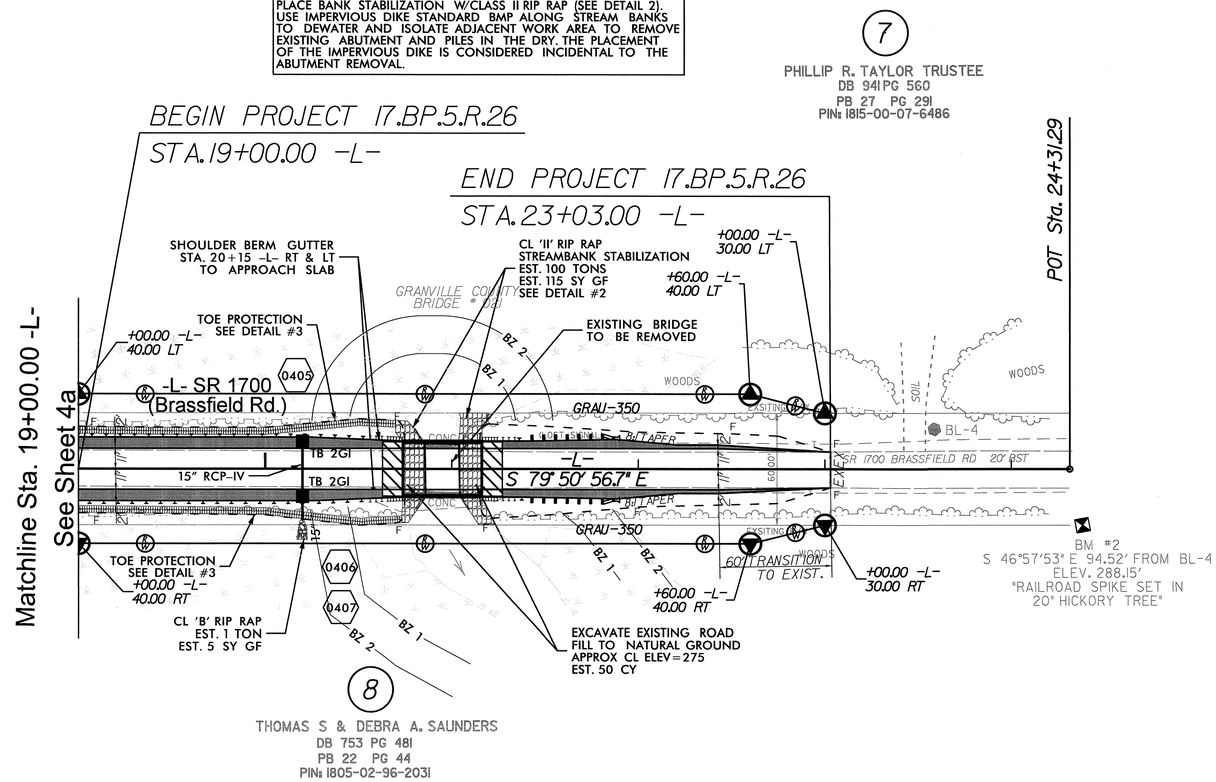
PROJECT REFERENCE NO.	SHEET NO.
17.BP.5.R.26	4b
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

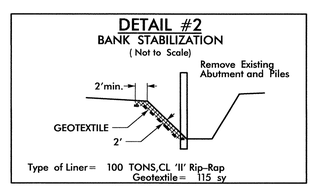
NORTH CAROLINA PROFESSIONAL SEAL 030877 ENGINEER LALEA C. FISHER 2/8/13

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON 2/8/13

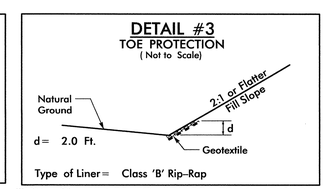
NAD 83/NSRS 2007

REMOVE EXISTING ABUTMENTS AND FOOTINGS. PLACE BANK STABILIZATION W/CLASS II RIP RAP (SEE DETAIL 2). USE IMPERVIOUS DIKE STANDARD BMP ALONG STREAM BANKS TO DEWATER AND ISOLATE ADJACENT WORK AREA TO REMOVE EXISTING ABUTMENT AND PILES IN THE DRY. THE PLACEMENT OF THE IMPERVIOUS DIKE IS CONSIDERED INCIDENTAL TO THE ABUTMENT REMOVAL.





STA. 20+80 -L-
STA. 21+10 -L-



FROM STA. 19+00 TO STA. 20+70 -L- LT & RT

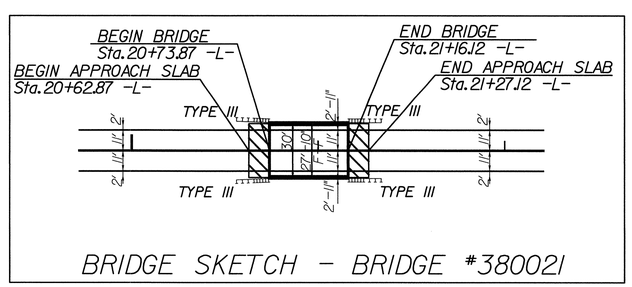
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY CH ENGINEERING FOR MONUMENT "BL-4"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 856978.188(ft) EASTING: 2109606.480(ft)
ELEVATION: 282.693' (BL-1)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99997465
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-4" TO -L- STATION IS

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BM-2: RR SPIKE SET IN 20" HICKORY TREE, 29.94' RT. OF STA. 24+38.12 -L-, EL. 288.15'

DESC.	NORTHING	EASTING	ELEVATION
BL-1	857129.47	2108658.70	278.01
BL-2	857059.83	2108952.95	277.31
BL-3	856994.90	2109315.64	277.10
BL-4	856978.19	2109606.48	282.69



BRIDGE SKETCH - BRIDGE #380021

PARCEL INDEX	
PARCEL NO.	PROPERTY OWNER NAME
7	PHILLIP R. TAYLOR, TRUSTEE
8	THOMAS S. & DEBRA A. SAUNDERS

-L- COORDINATE LIST		
STATION	NORTHING	EASTING
10+00	857110.45	2108257.74
11+00	857105.47	2108756.92
12+00	857020.37	2109249.58
13+00	857119.81	2108557.52
14+00	857115.13	2108657.40
15+00	857105.47	2108756.92
16+00	857090.84	2108855.83
17+00	857073.24	2108954.27
18+00	857055.62	2109052.71
19+00	857038.00	2109151.14
20+00	857020.37	2109249.58
21+00	857002.75	2109348.01
22+00	856985.12	2109446.45
23+00	856967.50	2109544.88
24+00	856949.88	2109643.32

SEE SHEET 5 FOR -L- PROFILE

5/14/99
2/7/2013
17BP5R26_rdy_psh04b.dgn
lfisher

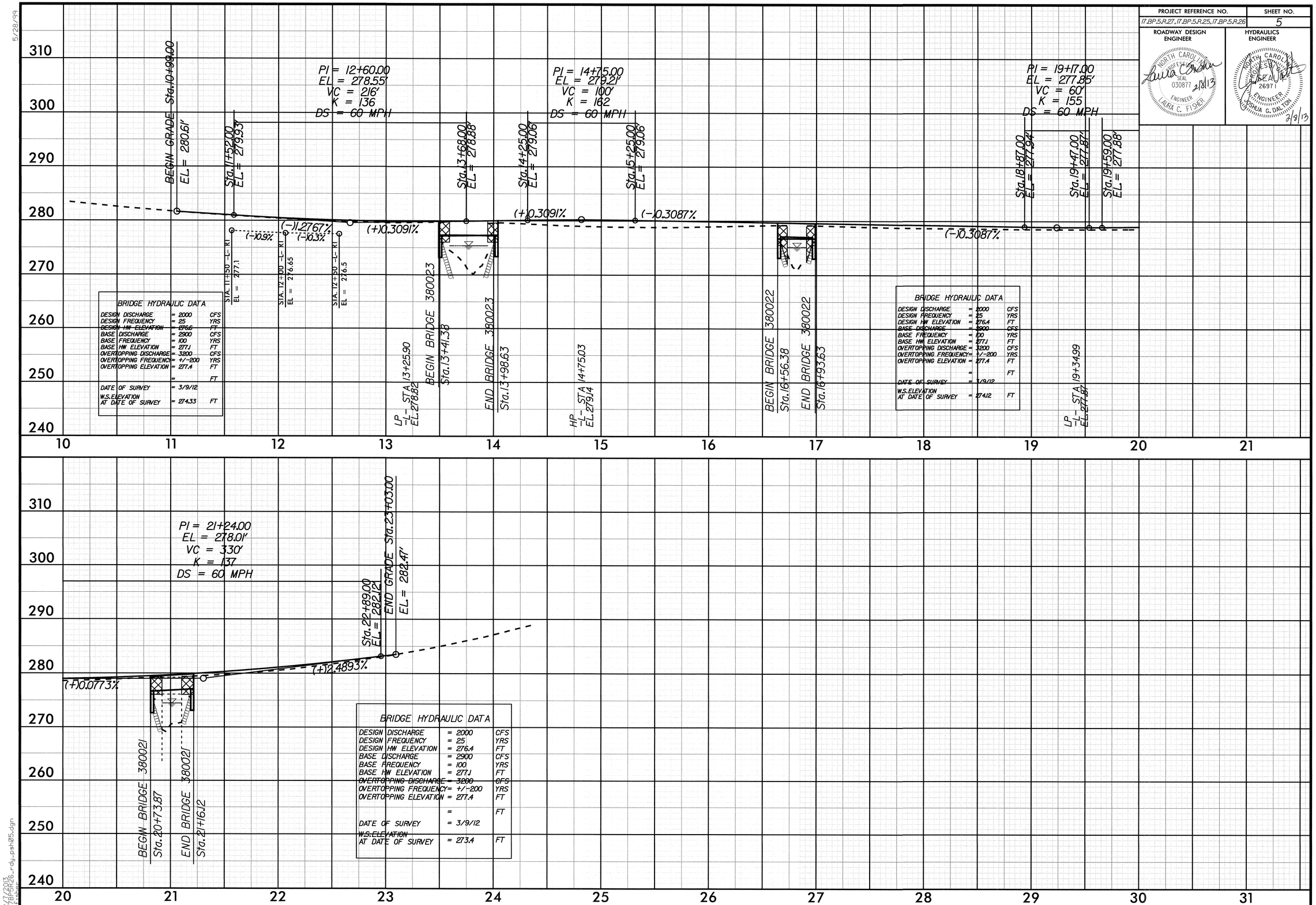
PROJECT REFERENCE NO.	SHEET NO.
17.BP.5.R.27, 17.BP.5.R.25, 17.BP.5.R.26	5

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030877 ENGINEER LAURA C. FISHER 2/8/13

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON 2/8/13



5/28/99

2/7/2013
17BP5R26_rdy_psh05.dgn

PROJECT REFERENCE NO.	SHEET NO.
17.BP.5.R.27, 17.BP.5.R.25, 17.BP.5.R.26	TCP-1
R/W SHEET NO.	

TRAFFIC ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030877 ENGINEER LAURA C. FISHER

Laura C. Fisher 2/8/13

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PHASING AND PAVEMENT MARKING PLAN

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

A) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

TRAFFIC PATTERN ALTERATIONS

B) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

C) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

D) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

E) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

F) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE THE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

G) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE ACCORDING TO THE ROADWAY STANDARD DRAWINGS.

H) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING
SR 1700 (BRASSFIELD ROAD)	PAINT

I) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES

MISCELLANEOUS

J) MAINTAIN ACCESS TO ALL RESIDENCES AND BUSINESSES BETWEEN THE CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION.

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS THEY APPEAR IN THE "ROADWAY STANDARD DRAWINGS" – ROADWAY DESIGN UNIT – N.C. DEPARTMENT OF TRANSPORTATION, DATED JANUARY 2012, ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS.

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1110.02	PORTABLE WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS – LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS – 2 LANE & MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS – BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

PHASING

STEP 1

USING ROADWAY STANDARD DRAWING NO. 1101.04, SHEET 1 OF 1, INSTALL ALL DETOUR SIGNING KEEPING SIGNS COVERED.

STEP 2

USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9, UNCOVER ALL DETOUR SIGNING, CLOSE SR 1700 (BRASSFIELD RD.) TO TRAFFIC AND SHIFT TRAFFIC TO DETOUR ROUTE.

STEP 3

DISMANTLE AND REMOVE EXISTING BRIDGE.

STEP 4

COMPLETE CONSTRUCTION OF PROPOSED STRUCTURES, APPROACH ROADWAY TIE-INS, AND ASSOCIATED ITEMS.

STEP 5

PLACE FINAL PAVEMENT MARKINGS ON SR 1700 (BRASSFIELD RD.) AND OPEN TO TRAFFIC.

STEP 6

USING ROADWAY STANDARD DRAWING NO. 1101.04, SHEET 1 OF 1, REMOVE ALL DETOUR SIGNING AND ALL TRAFFIC CONTROL DEVICES.

FINAL PAVEMENT MARKING SCHEDULE

DESCRIPTION	PAY ITEM
WHITE EDGELINE (2X)	PAINT (4")
DOUBLE YELLOW CENTER LINE (2X)	PAINT (4")

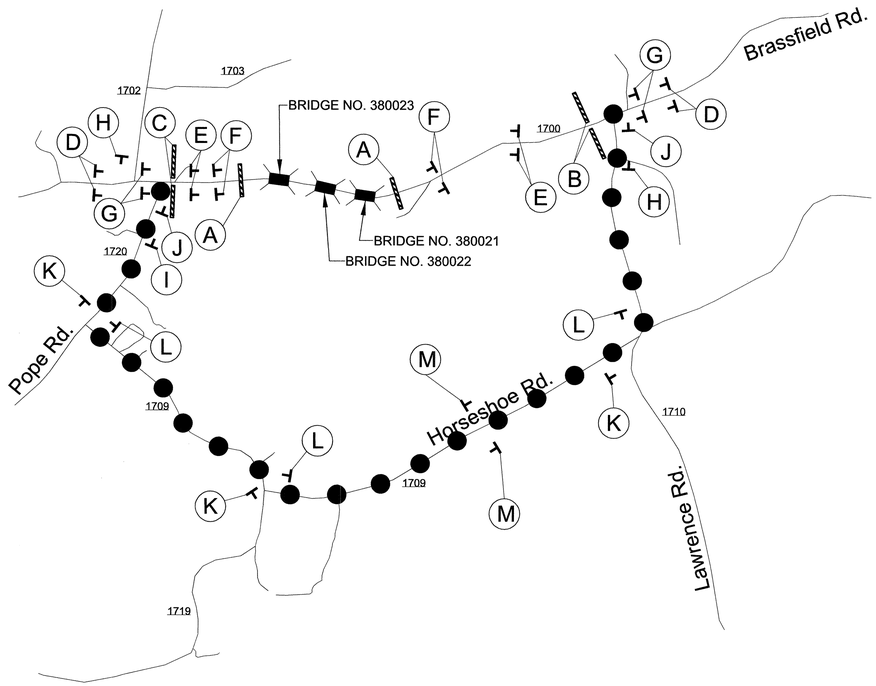
5/14/99
2/7/2013
17BP5R26_rdy_TCP-1.dgn

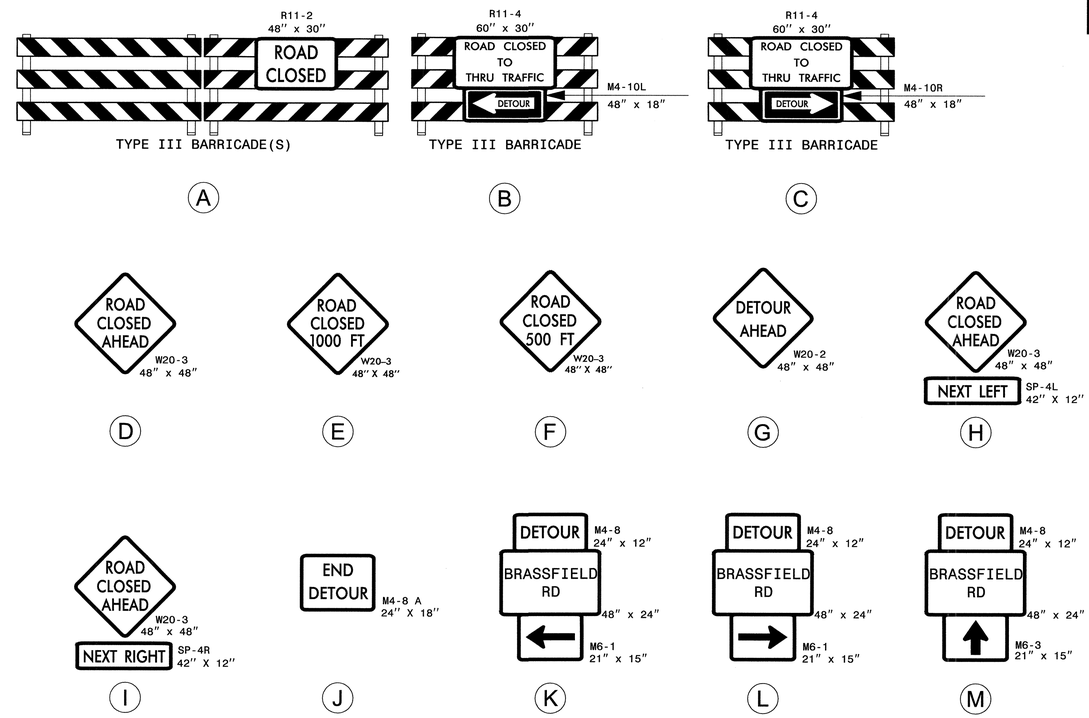
PROJECT REFERENCE NO.	SHEET NO.
I7.BP-5.R.27, I7.BP-5.R.25, I7.BP-5.R.26	TCP-2
R/W SHEET NO.	

TRAFFIC ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030877 ENGINEER LAURA C. FISHER 2/8/13

DETOUR FOR GRANVILLE 21, 22, and 23 BRIDGE CLOSURES





SIGN NUMBER: none
TYPE: D
QUANTITY: 1

BACKG COLOR: Orange
COPY COLOR: Black

SIGN WIDTH: 4'-0"
HEIGHT: 2'-0"
TOTAL AREA: 8.0 Sq.Ft.

MAJ.COPY SERIES: Overhead

ROUTE MARKERS:

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 0.75"
RADII: 3"

ARROW TYPES:

NO. Z BARS:
LENGTH:

MAT'L: 1.6 mm ALUMINUM

LETTER POSITIONS

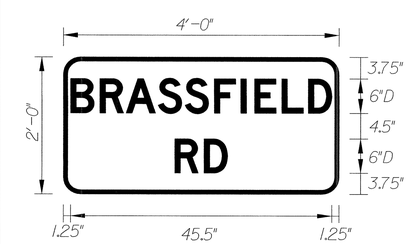
	B	R	A	S	S	F	I	E	L	D		
1.3	5.1	4.6	5.6	4.7	5.1	4.6	2.4	4.7	4.6	4.1	1.3	45.5
	R	D										
19.4	5.1	4.1	19.4									9.2

Letter positions are to the lower left corners

USE NOTES: 1,3,4,6

1. Legend and border shall be direct applied encapsulated lens reflective sheeting.
2. Legend and border shall be direct applied enclosed lens reflective sheeting.
3. Shields shall be encapsulated lens reflective sheeting on 0.8mm aluminum and demountable.
4. Background shall be encapsulated lens reflective sheeting.
5. Background shall be enclosed lens reflective sheeting.
6. Center arrows vertically on sign.

DESIGN BY: MES
CHECKED BY: LCF
PROJECT ID: I7.BP-5.R.25, I7.BP-5.R.26, I7.BP-5.R.27
DIV: 5
DATE: Aug 23, 2012



BORDER
R=3"
TH=0.75"

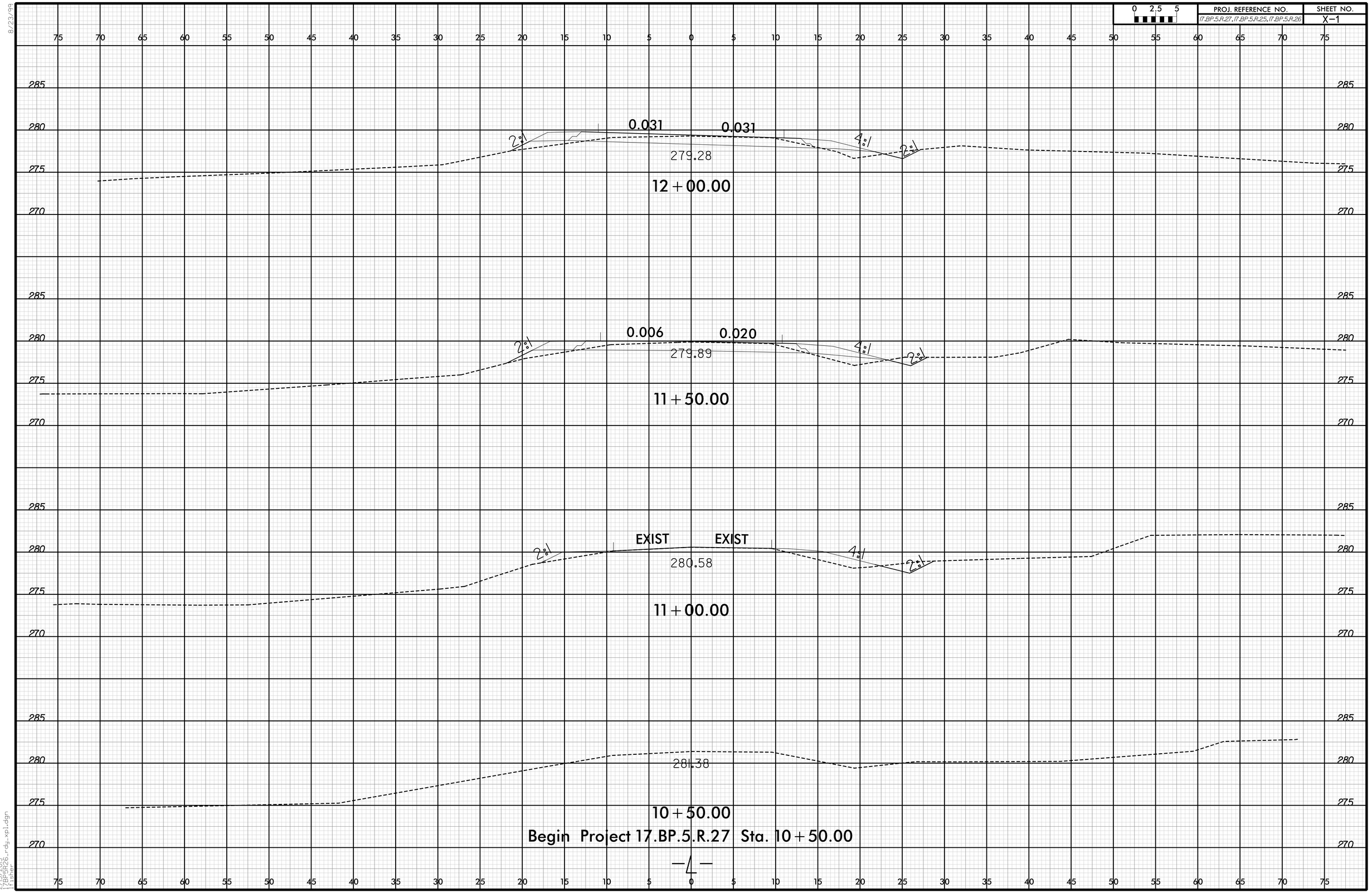
Panel Style: East River.ssl
M.U.T.C.D.: 2003 Edition

NORTH CAROLINA D.O.T. SIGN DETAIL

LEGEND

DETOUR ROUTE

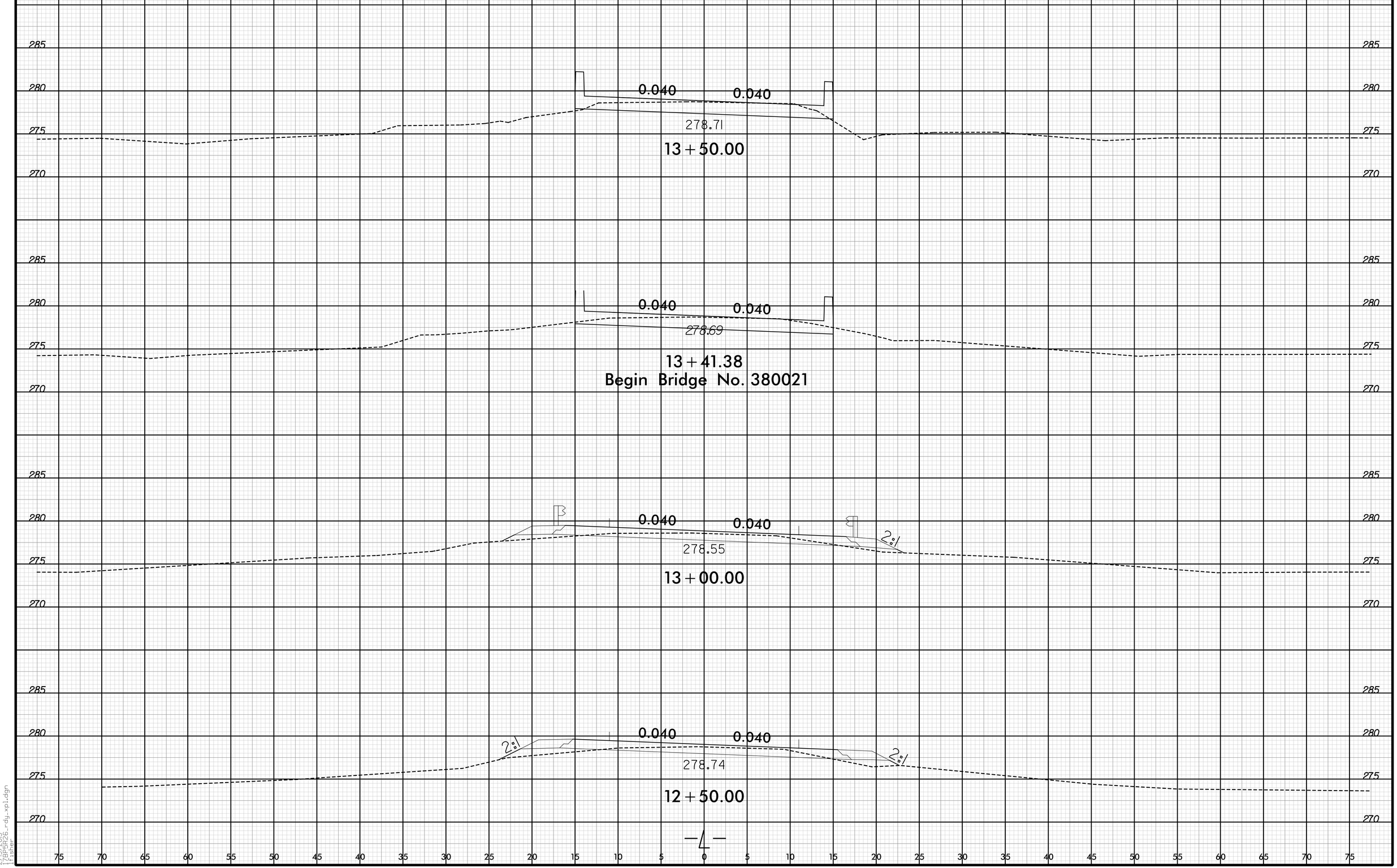
5/14/99
2/7/2013
I7BPR26_rdy_TCP-2.dgn



8/23/99

2/13/2013
17BP5R26_rdy_xpl.dgn
lfisher

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17.BP.5.R.27, 17.BP.5.R.25, 17.BP.5.R.26	X-2

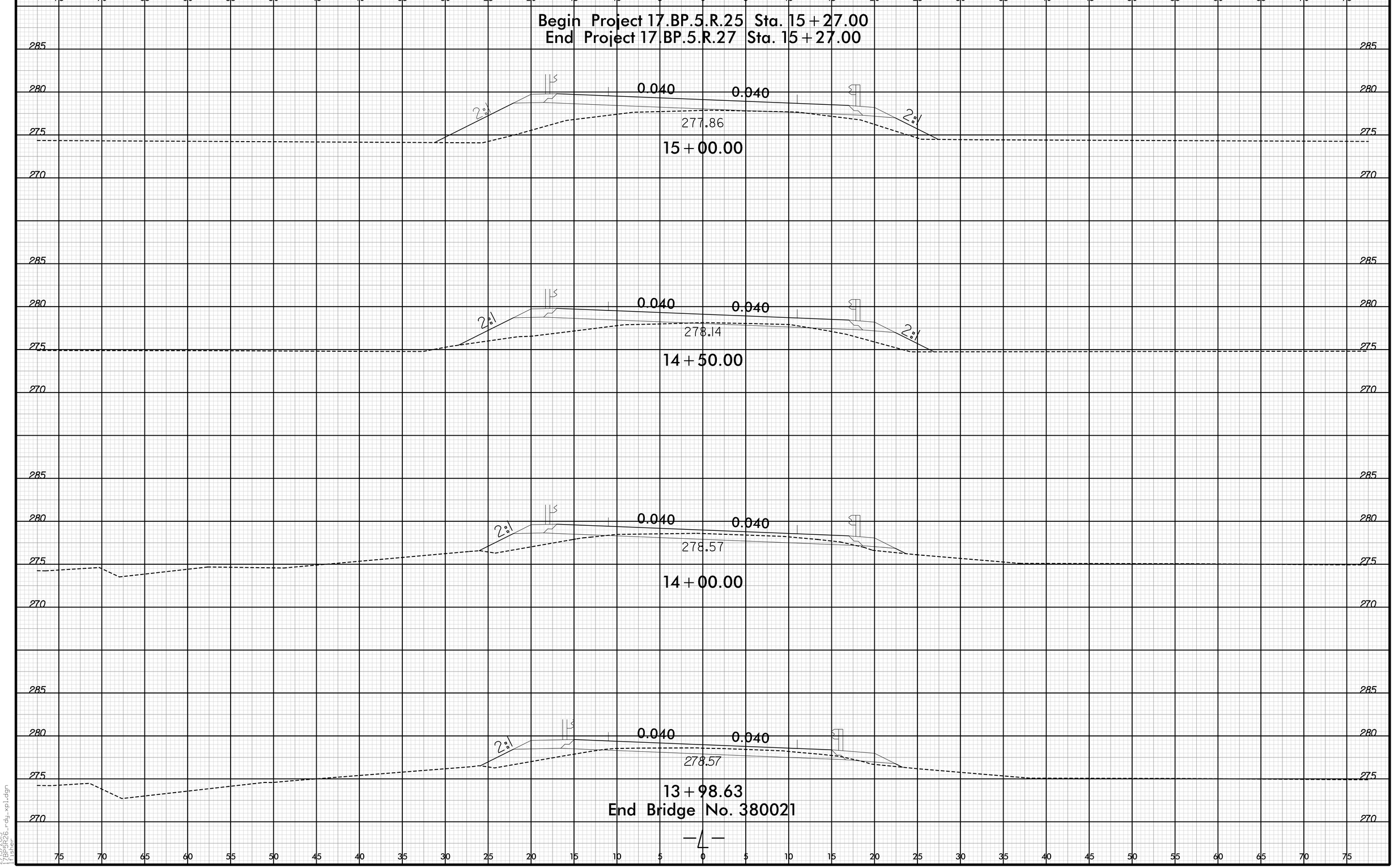


8/23/99

2/13/2013
17BP5R26_rdy_xpl.dgn
FFisher

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17.BP.5.R.27, 17.BP.5.R.25, 17.BP.5.R.26	X-3



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lfisher

8/23/99

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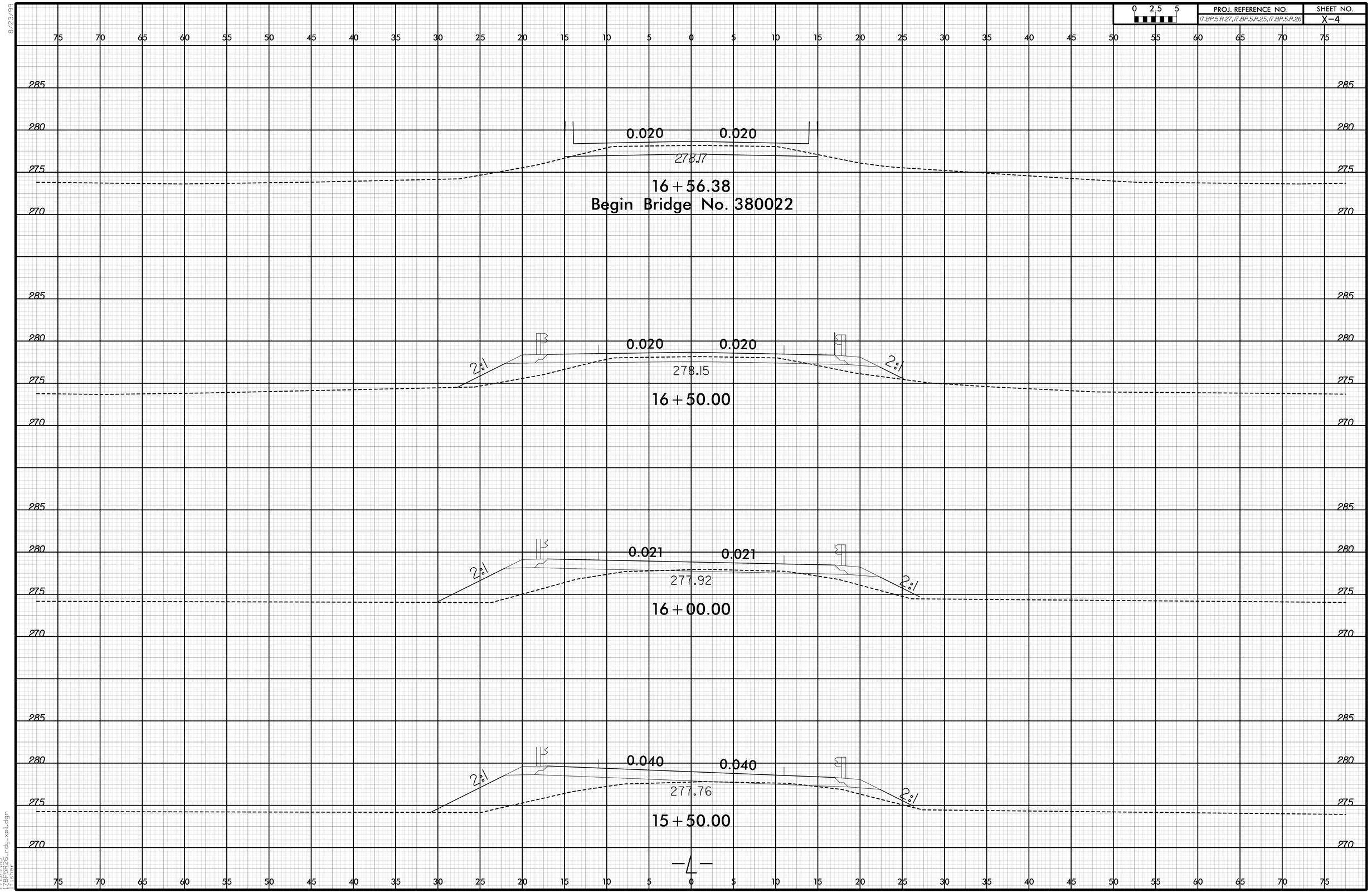

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lfisher

8/23/99

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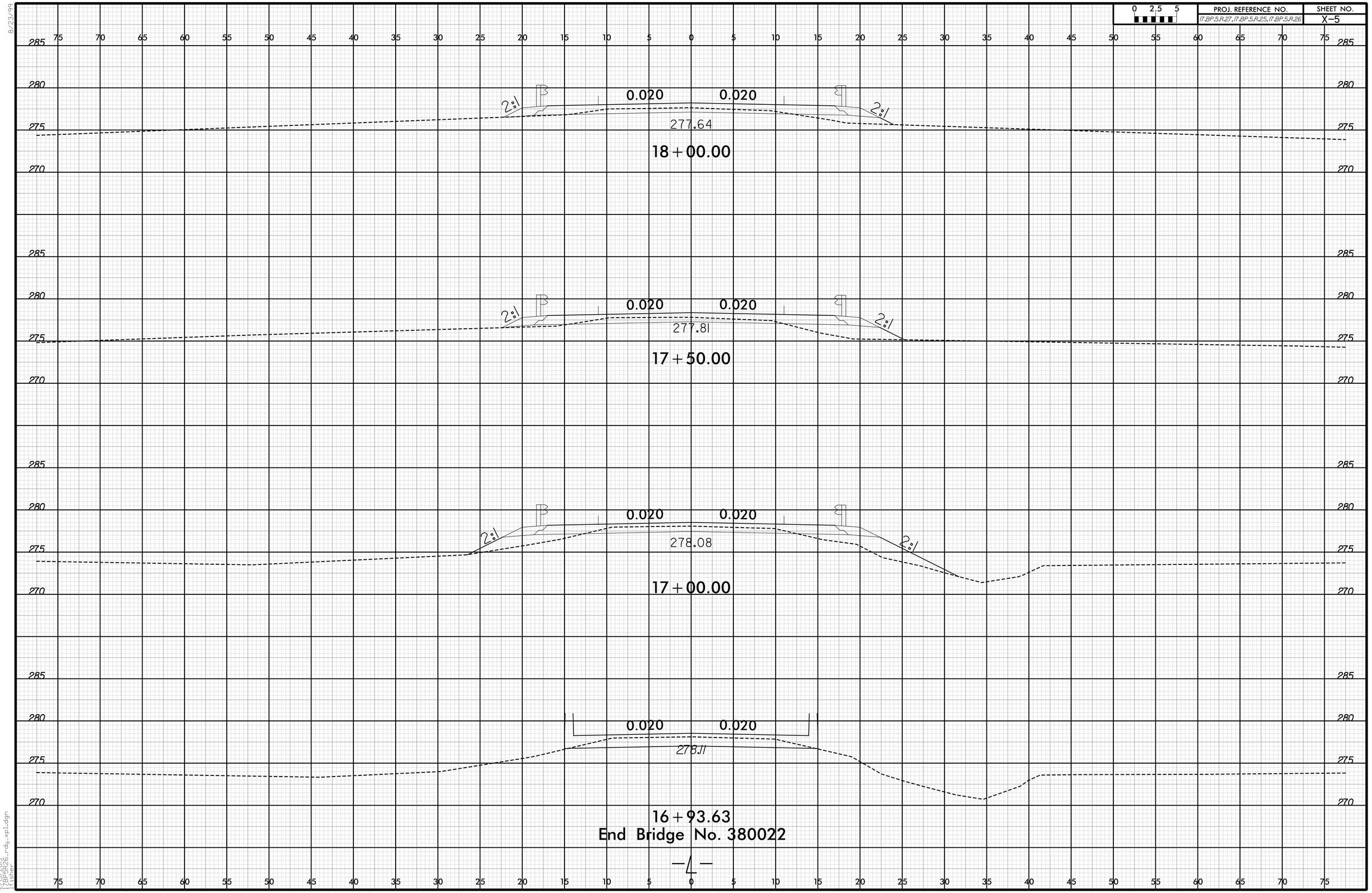

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lfisher

8/23/99

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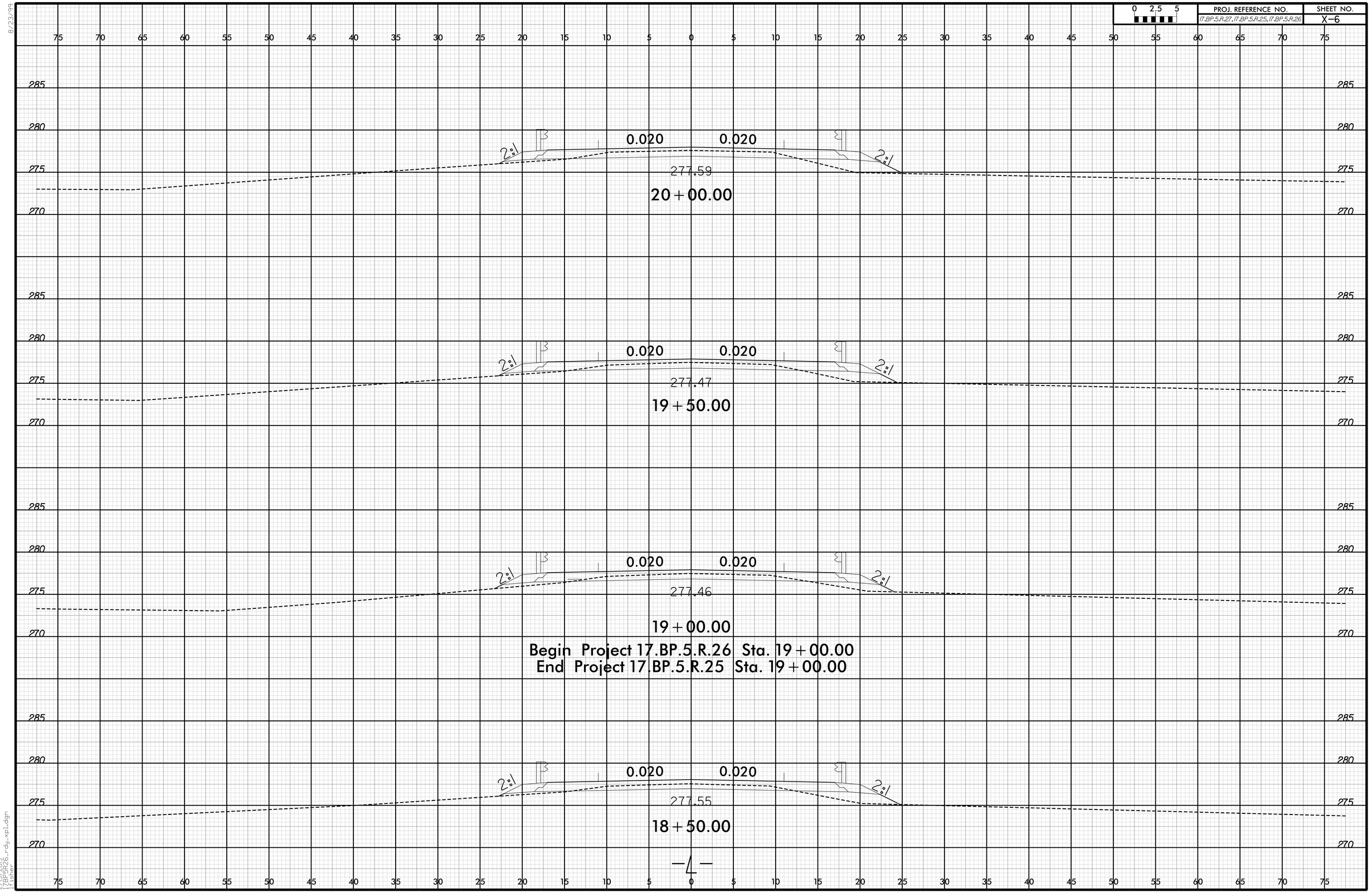

2/13/2013
17BP5R26
rdy_xpl.dgn
fisher

8/23/99

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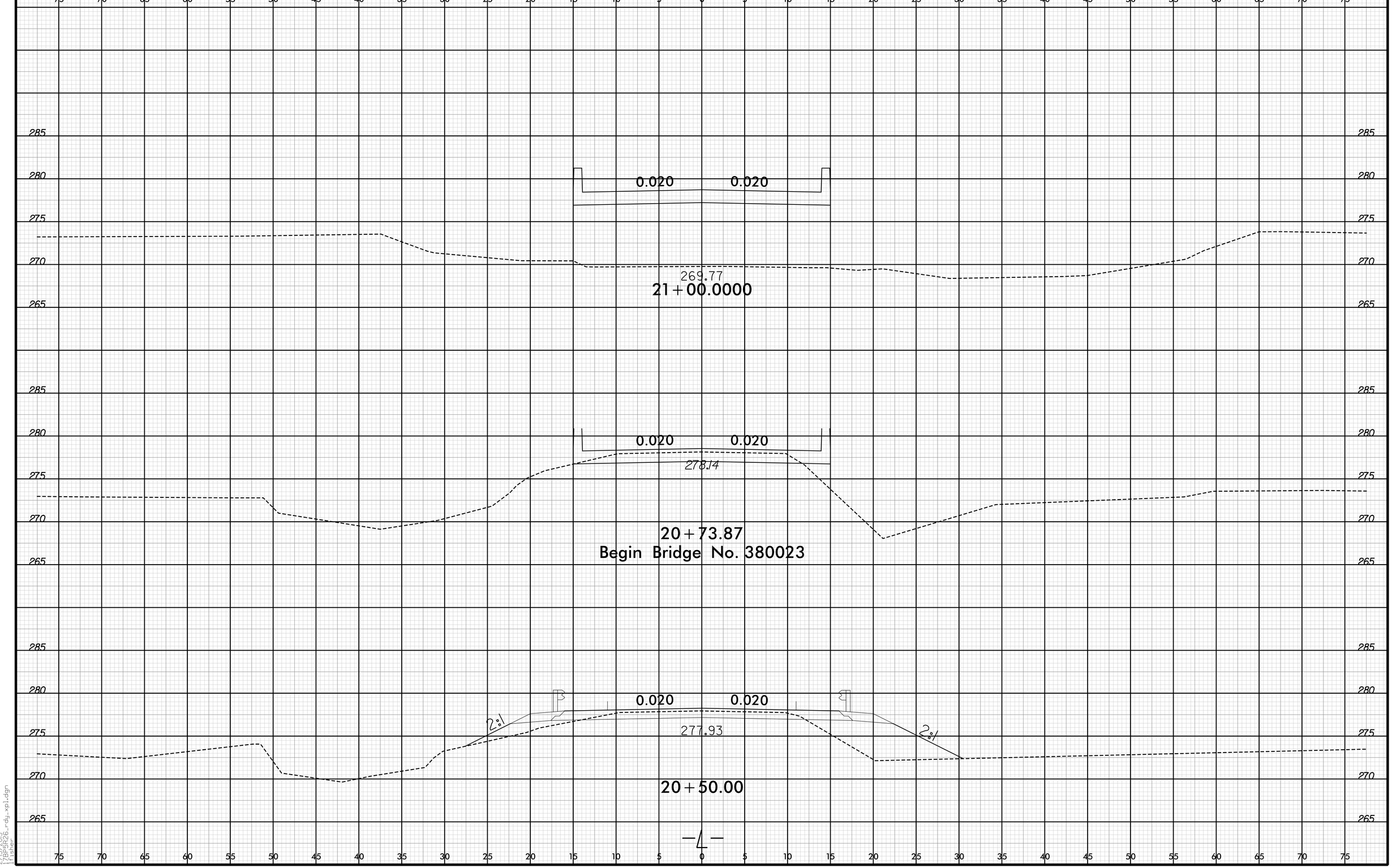

2/13/2013
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Fisher

8/23/99

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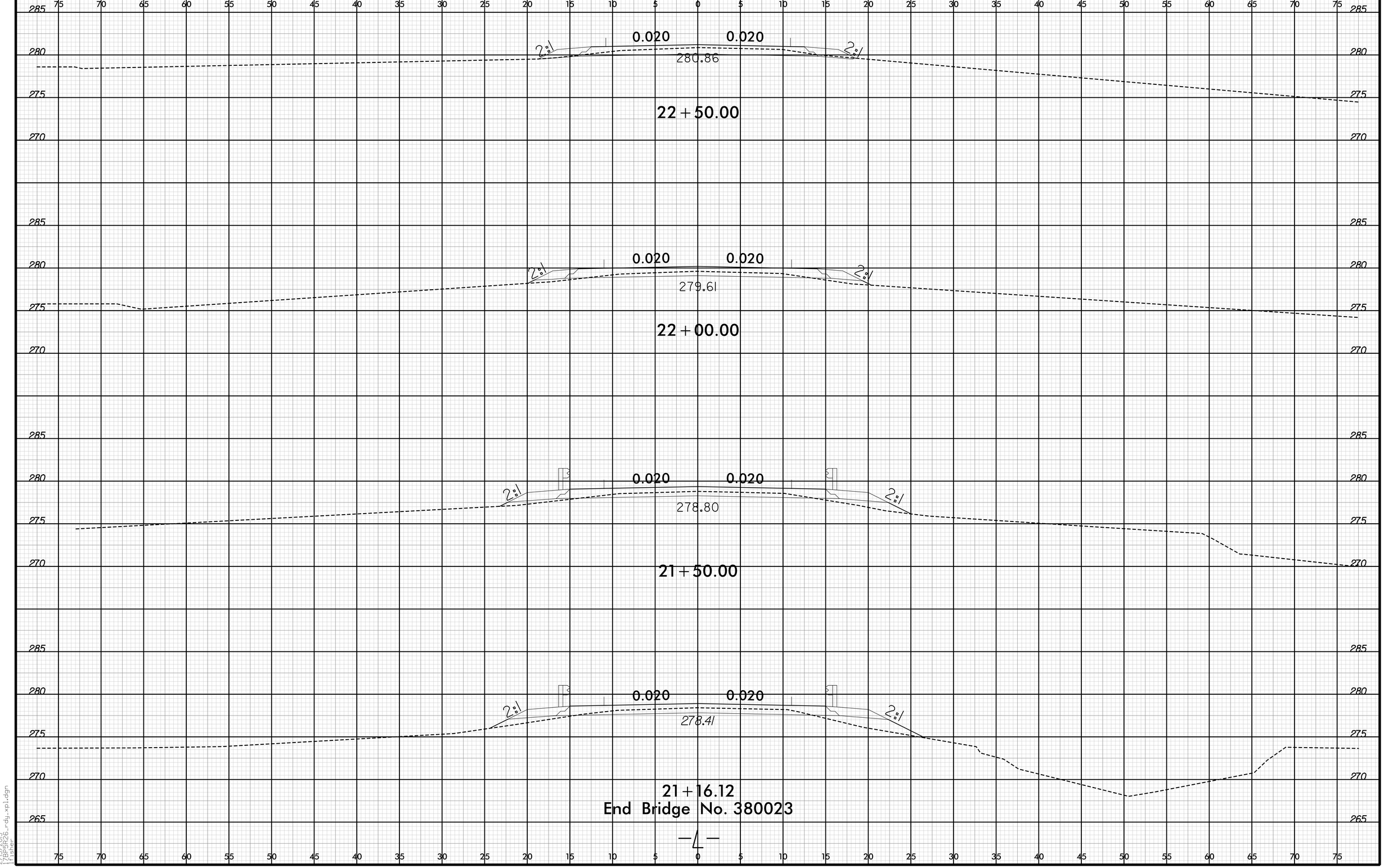

2/13/2013
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Fisher

8/23/99

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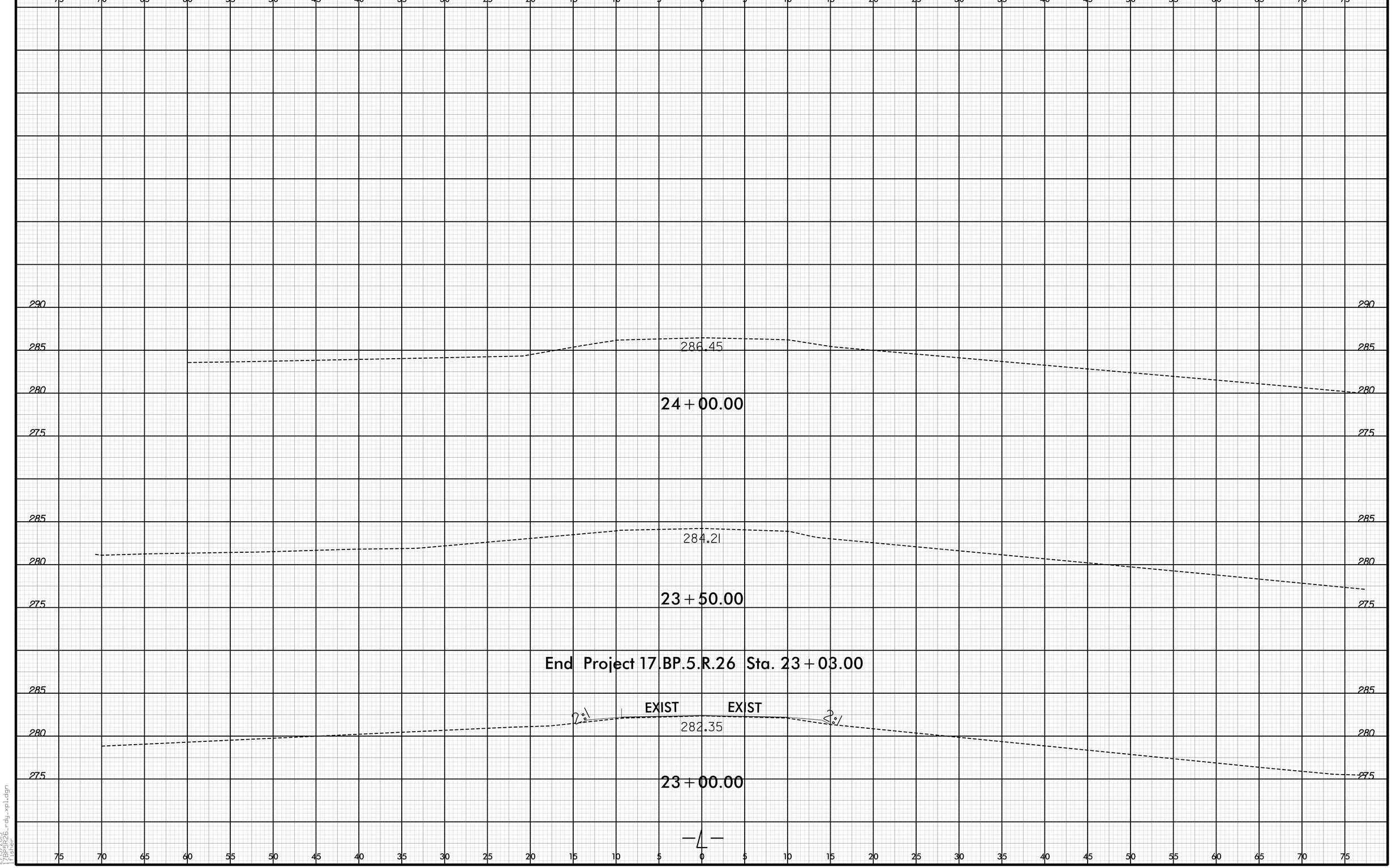

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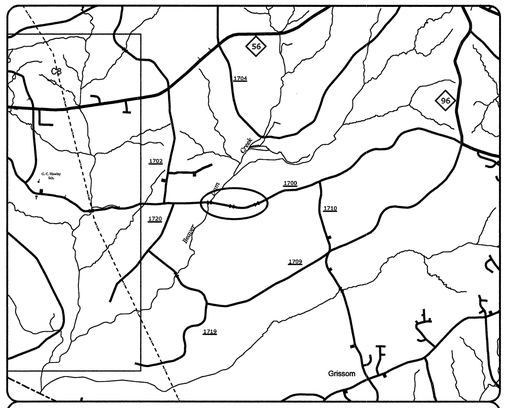
TIP PROJECT: 17BP.5.R.27–25–26

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.5.R.27-25-26	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION



VICINITY MAP

OFFSITE DETOUR

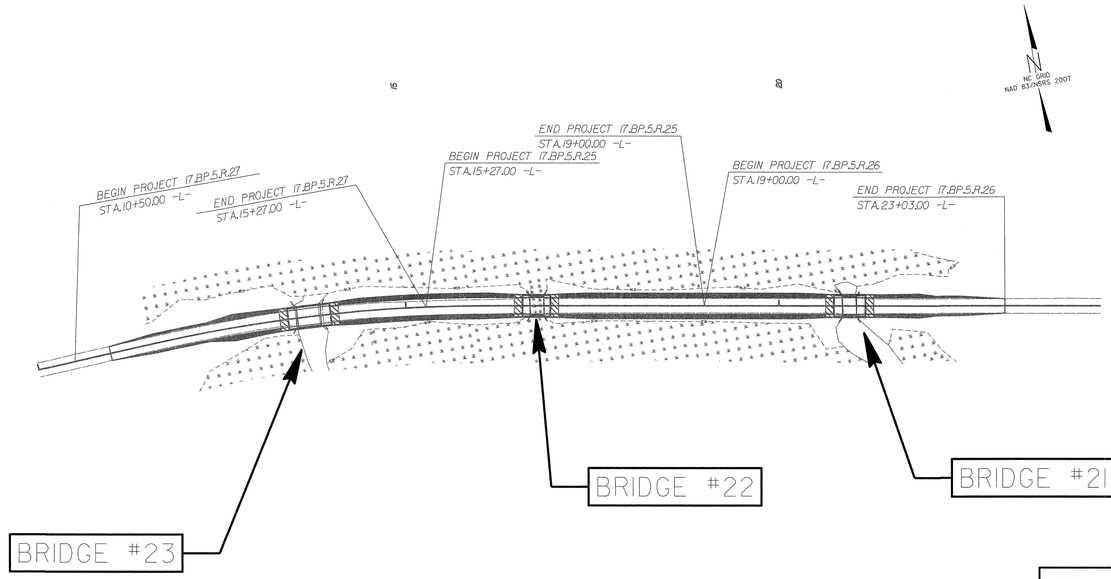
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

GRANVILLE COUNTY

LOCATION: BRIDGE NO. 21, 22, 23 ON SR 1700 OVER BRANCH BEAVERDAM CREEK

TYPE OF WORK: GRADING, PAVING, DRAINAGE & STRUCTURE



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle/ Coir Fiber Wattle	EW CFW
	Wattle/ Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

JOSHUA G. DALTON, PE, CPESC
LEVEL IIIA NAME

307
LEVEL IIIA CERTIFICATION NO.

2012 STANDARD SPECIFICATIONS

GRAPHIC SCALE

25 0 50
PLANS

25 0 50
PROFILE (HORIZONTAL)

5 0 10
PROFILE (VERTICAL)

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
2/8/13

SIGNATURE: ***P.E.***

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared In the Office of:

SUNGATE DESIGN GROUP, P.A.

915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243 FAX (919) 859-6258
ENG FIRM LICENSE NO. C-890

Roadway Standard Drawings

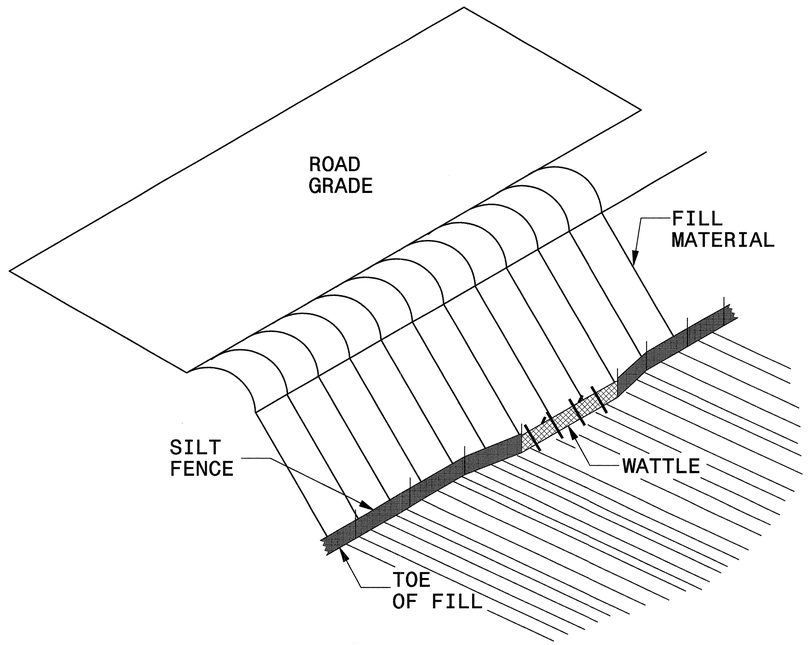
The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

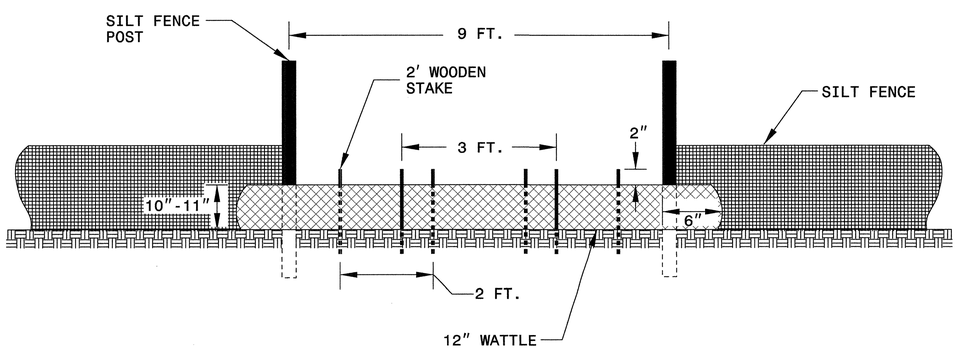
DGN FILE: C:\SYSTEM\DGN\
DATE: 2/8/2013 2:57:14 PM
USER NAME: joshua.dalton

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.27-25-26	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SILT FENCE COIR FIBER WATTLE BREAK DETAIL



ISOMETRIC VIEW



VIEW FROM SLOPE

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

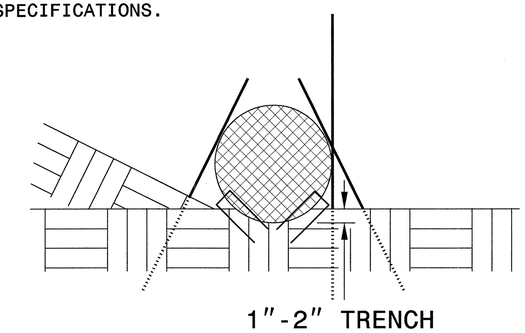
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

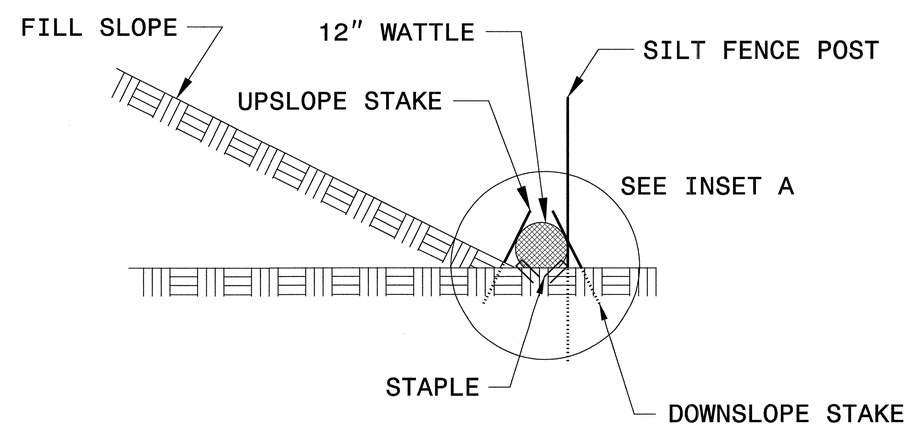
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A

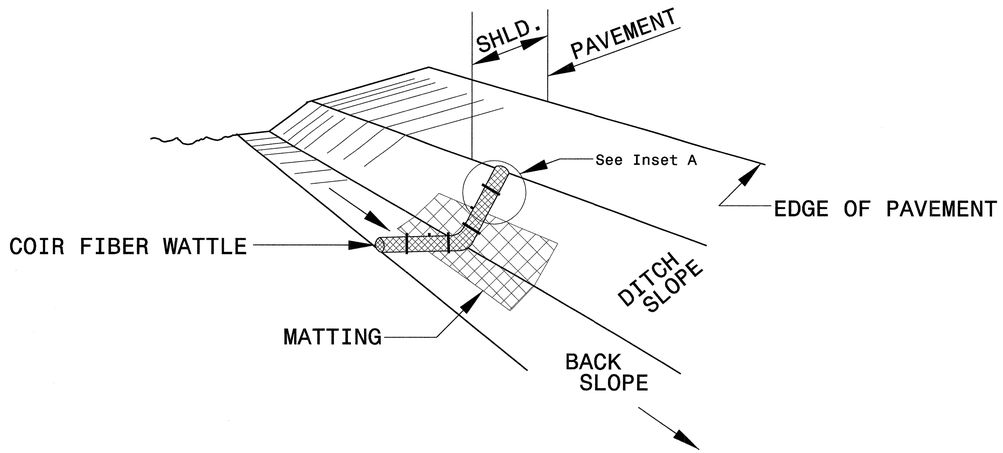




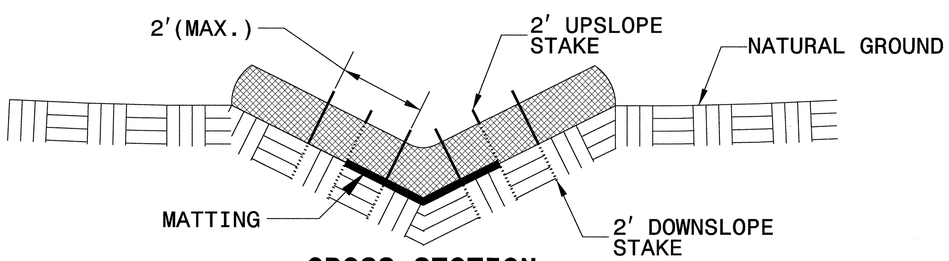
SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.27-25-26	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

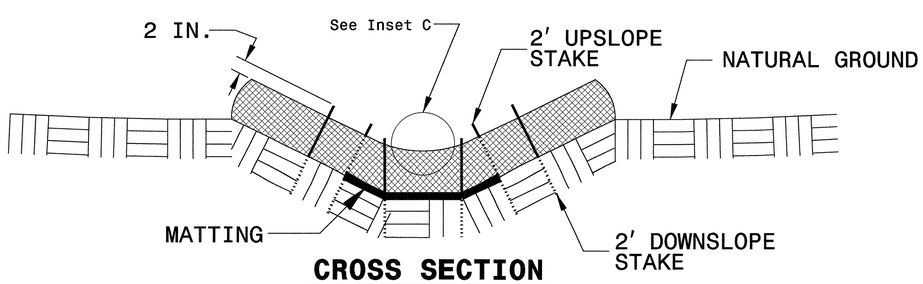
COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

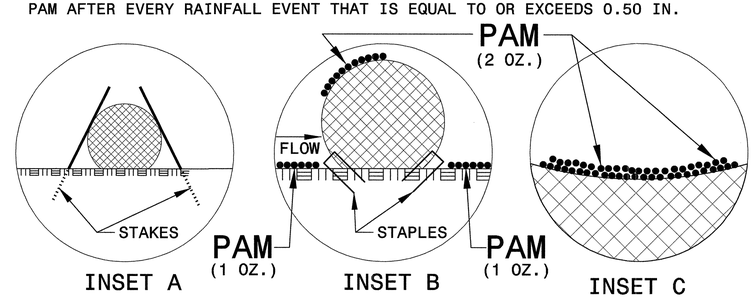
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

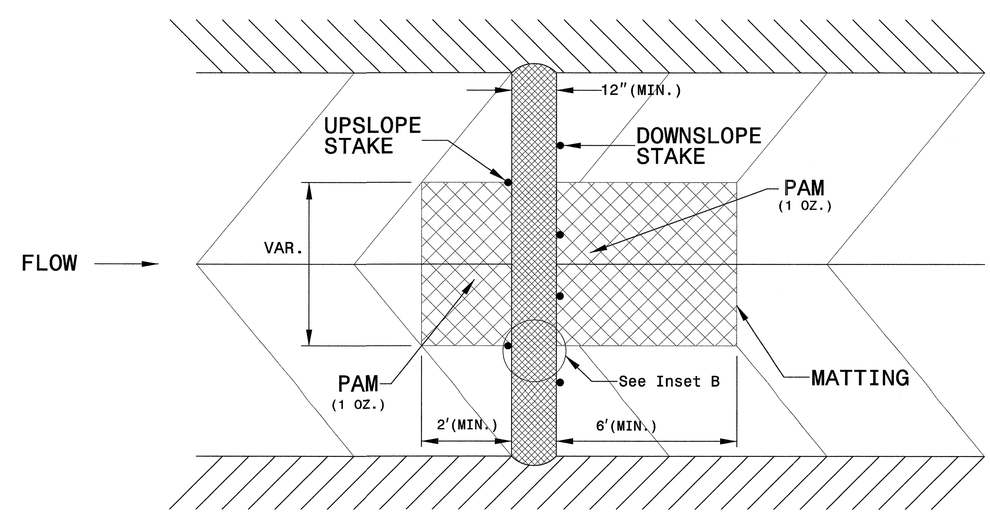
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.

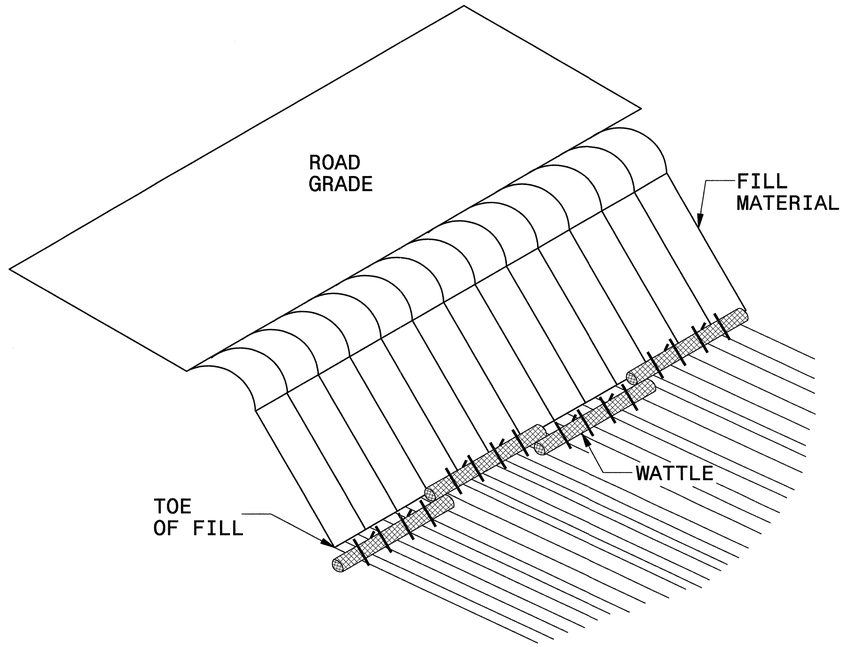




TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.27-25-26	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER WATTLE BARRIER DETAIL



ISOMETRIC VIEW

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLES ON TOE OF SLOPE.

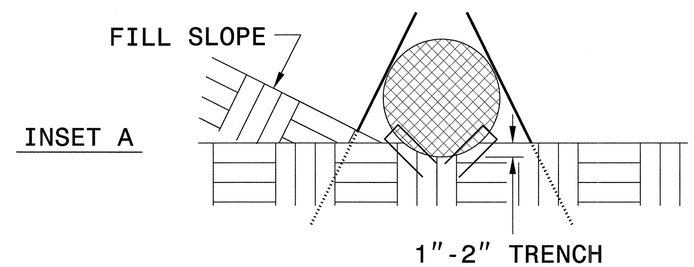
USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

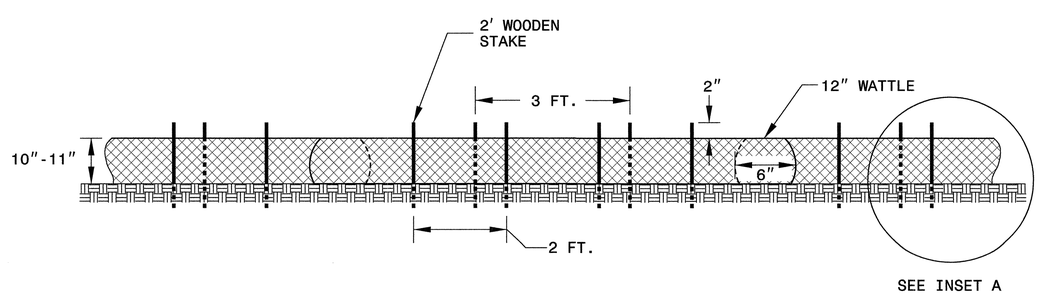
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

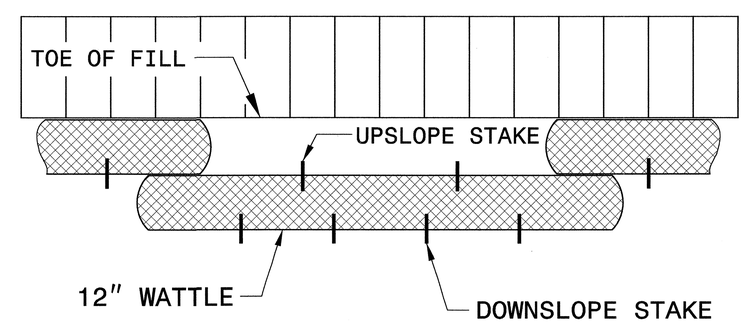
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 20 FT.





FRONT VIEW



TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.27-25-26	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.27-25-26	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	10+50	12+50	RT	140
				SUBTOTAL	140
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					7689
				TOTAL	7829

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.27-25-26	EC-04/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

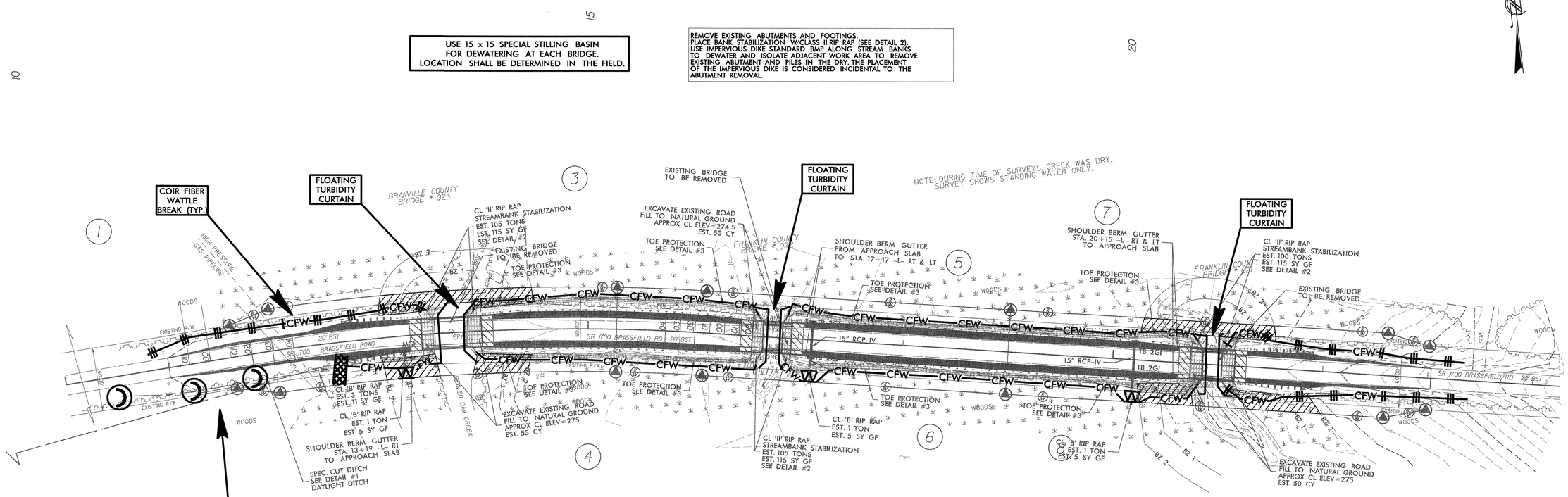
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
2-8-13

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

ENVIRONMENTALLY SENSITIVE AREA SEE PROJECT SPECIAL PROVISIONS

USE 15 x 15 SPECIAL STILLING BASIN FOR DEWATERING AT EACH BRIDGE. LOCATION SHALL BE DETERMINED IN THE FIELD.

REMOVE EXISTING ABUTMENTS AND FOOTINGS. PLACE BANK STABILIZATION W/CLASS II RIP RAP (SEE DETAIL 2). USE IMPERVIOUS DIKE STANDARD BMP ALONG STREAM BANKS TO DEWATER AND ISOLATE ADJACENT WORK AREA TO REMOVE EXISTING ABUTMENT AND PILES IN THE DRY. THE PLACEMENT OF THE IMPERVIOUS DIKE IS CONSIDERED INCIDENTAL TO THE ABUTMENT REMOVAL.

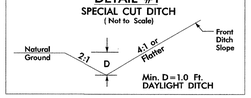


INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.

Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

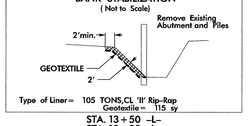
NOTE:
TEMPORARY SILT FENCE SHALL BE INSTALLED A MAXIMUM OF 3 FEET FROM TOE OF FILL IN WETLAND AREAS

DETAIL #1
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 10+50 TO STA. 12+50 -L- RT

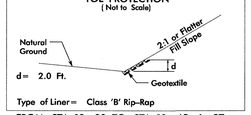
DETAIL #2
BANK STABILIZATION
(Not to Scale)



Type of Liner= 105 TONS,CL 'II' Rip-Rap
Geotextile= 115 sy

STA. 13+50 -L-
STA. 13+90 -L-
STA. 16+65 -L-
STA. 16+90 -L-
STA. 20+80 -L-
STA. 21+10 -L-

DETAIL #3
TOE PROTECTION
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

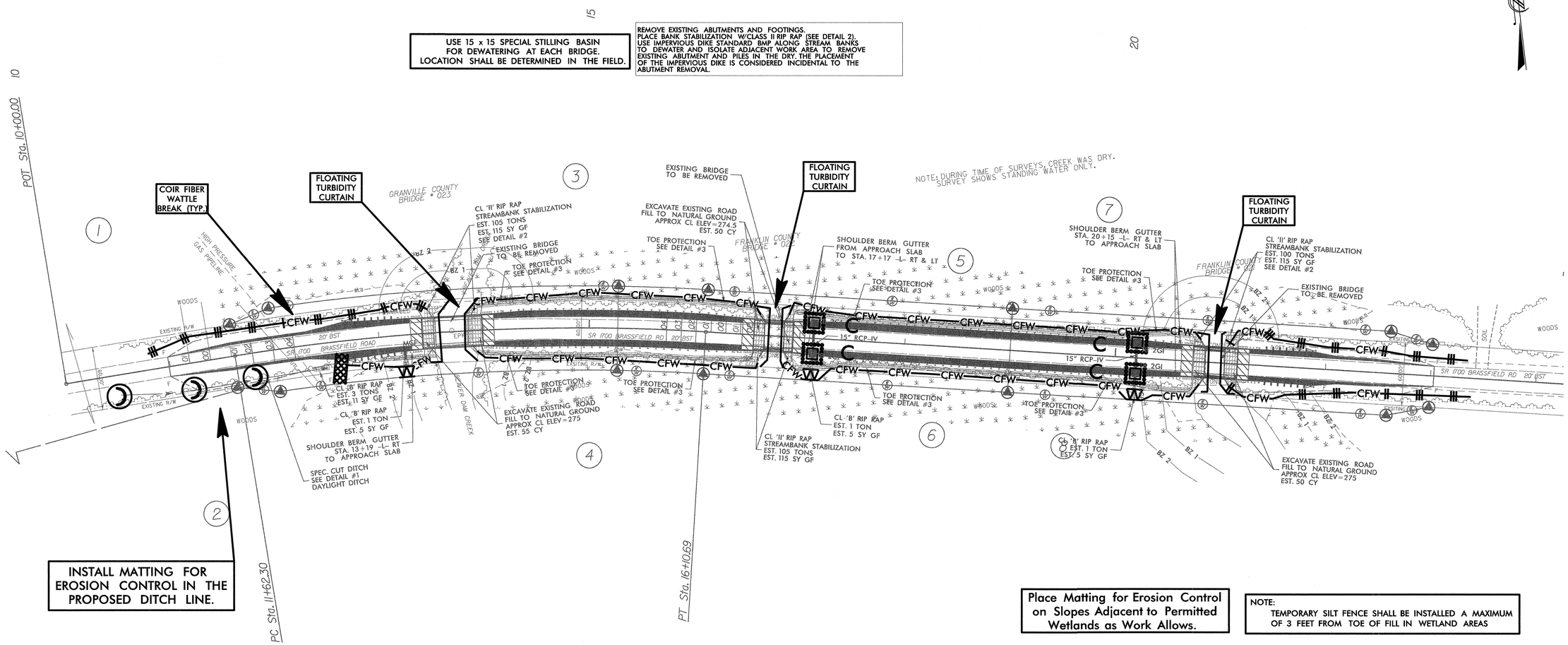
FROM STA. 13+00 TO STA. 13+45 -L- RT
FROM STA. 13+95 TO STA. 15+27 -L- LT & RT
FROM. STA. 15+27 TO STA. 16+55 -L- LT & RT

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.27-25-26	EC-05/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
2-8-13

USE 15 x 15 SPECIAL STILLING BASIN FOR DEWATERING AT EACH BRIDGE. LOCATION SHALL BE DETERMINED IN THE FIELD.

REMOVE EXISTING ABUTMENTS AND FOOTINGS. PLACE BANK STABILIZATION W/CLASS II RIP RAP (SEE DETAIL 2). USE IMPERVIOUS DIKE STANDARD BMP ALONG STREAM BANKS TO DEWATER AND ISOLATE ADJACENT WORK AREA TO REMOVE EXISTING ABUTMENT AND PILES IN THE DRY. THE PLACEMENT OF THE IMPERVIOUS DIKE IS CONSIDERED INCIDENTAL TO THE ABUTMENT REMOVAL.

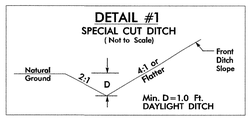


INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.

Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

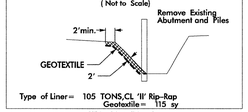
NOTE:
TEMPORARY SILT FENCE SHALL BE INSTALLED A MAXIMUM OF 3 FEET FROM TOE OF FILL IN WETLAND AREAS

DETAIL #1
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 10+50 TO STA. 12+50 -L- RT

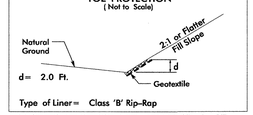
DETAIL #2
BANK STABILIZATION
(Not to Scale)



Type of Liner= 105 TONS,CL 'II' Rip-Rap
Geotextile= 115 sy

STA. 13+50 -L-
STA. 13+90 -L-
STA. 16+65 -L-
STA. 16+90 -L-
STA. 20+80 -L-
STA. 21+10 -L-

DETAIL #3
TOE PROTECTION
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

FROM STA. 13+00 TO STA. 13+45 -L- RT
FROM STA. 13+95 TO STA. 15+27 -L- LT & RT
FROM STA. 15+27 TO STA. 16+55 -L- LT & RT